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Mississippi Agricultural and Mechanical College reports

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Report of the Trustees, President and other Officers of the Agricultural and Mechanical College of Mississippi, from the organization of college to Dec. 1st, 1883

Biennial report of the Trustees, President and other Officers of the Agricultural and Mechanical College of Mississippi, 1884-'85-1890 and 1891

Biennial report of the Trustees, President and other Officers of the Mississippi Agricultural & Mechanical College, 1892 and 1893-<1894-1896>

LLMC 01-490t

BIENNIAL REPORT

OF THE

Trustees, President, and Other Officers

OF THE

AGRICULTURAL AND MECHANICAL

COLLEGE OF MISSISSIPPI,

FOR THE

YEARS 1890 AND 1891.

PUBLISHED FOR THE INFORMATION OF THE LEGISLATURE AND THE PUBLIC.

JACKSON, MISS.:
R. H. HENRY, STATE PRINTER,
1891.

RERORT OF EXECUTIVE COMMITTEE.

Hon. John M. Stone, Governor and Ex-Officio President of the Board of Trustees of the A. & M. College:

We herewith transmit report of the President and Faculty of the Agricultural and Mechanical College, for the years 1890 and 1891. We invite special attention to the details of the President's report, showing the necessity of additional appropriations.

The policy and wisdom of sustaining this institution, is no longer an open question. The people in their sovereign capacity have solemnly declared that "the Legislature shall preserve intact, the endowments to—and support the College."

The laws, both Federal and State, under which the institution is organized, contemplate a Mechanical as well as an Agricultural College. While many thousand dollars have been appropriated in the equipment of the Agricultural department, with most gratifying results, the work and instruction in the Mechanical department is purely elementary. Only a start has been made.

Not to afford the youth of the State, who wish to engage in mechanical pursuits an equal opportunity, would be a violation of the letter and spirit of the law, and class legislation of the most unjust character. Besides, development in mechanical pursuits, is by all, conceded to be essential to the future progress of the State. We therefore urge an appropriation sufficient to enable the College to afford thorough instruction in the industrial arts and sciences. We would also especially recommend an appropriation for additional dormitories. One ground of complaint against the College, has been its limited capacity. Its benefits should be as generally enjoyed as possible. Twice as many students would attend as do, if there were room. This would entail no additional expense for tuition.

We transmit herewith, the law of Congress, approved Aug. 30, 1890, and call attention to its provisions. It will be seen that the appropriations of the United States Government are not available for buildings or repairs, and are expressly conditioned upon the State continuing her appropriations.

We take pleasure in commending the President and Faculty for their efficiency and fidelity. The policy of the President has received the hearty approval and support of the entire Board of Trustees.

Very respectfully,
W. B. MONTGOMERY,
A. F. FOX,
Executive Committee.

President's Report.

AGRICULTURAL COLLEGE, MISSISSIPPI,
November 25, 1891.

To the Honorable Board of Trustees of the Agricultural and Mechanical College of Mississippi:

GENTLEMEN—I have the honor to present this as the report of the Tenth and Eleventh sessions of the College, for the information of the Legislature, and for distribution to the other industrial colleges named in the law of Congress partially endowing these institutions. At the close of the tenth session, the College issued a decennial catalogue which gave a summary of statistics and results as seen from our experience, thereby enabling us to see if we had been carrying out the spirit of the law.

REVIEW FOR TEN SESSIONS.

To the present time, the College has had 2,117 individual students, averaging an annual attendance of 314, a larger number than have attended any other college in the State for the same length of time. Eighty-five per cent of those attending were the sons of farmers and mechanics.

The average necessary expense per session has been $125.00, including cost of a uniform, while at other institutions, no notice is taken of clothing as an expense of the student.

From one-fourth to one-third of the students attending get through the year on one hundred dollars or less, depending on the amount of labor performed; putting the advantages of the institution within the reach of students of moderate means.

To date there have been 114 graduates, the first class getting their diplomas in 1883. The table compiled at the end of the tenth session, showed that forty-six per cent of the number were engaged in farming, or as professors or assistants at agricultural colleges, or at agricultural experiment stations. It also brought out the fact, that the graduates of the College are occupying and maintaining prominent positions in twelve States and Territories, showing that the influence of the College is already wide spread. As farmers, horticulturists, dairymen, professors of agriculture, horticulture, chemistry, mathematics, as superintendents of model farms for railroad corporations, and for individuals, as teachers, as professional men, as workers in agricultural experiment stations, as merchants, and as business men generally, they are now to be found in Mississippi and elsewhere, earning and enjoying good support, and showing the benefits of their industrial training. Six or more, are receiving salaries of $2,000 a year. Several, more than that amount.

The influence of the College on the agriculture of the State may be estimated by noticing the impetus which has been given to horticulture, stock-raising, dairying, and the cultivation of grasses; also by noting the increasing tendency toward diversified farming, which has been advocated and illustrated at the College.

It would therefore seem from the record, that the College is carrying out the law, as expressed, viz: "To promote the liberal and practical education of the industrial classes, in the several pursuits and professions in life." It has also been demonstrated that the standard of instruction is sufficiently high to enable its graduates in attending professional colleges, to compare most favorably with the graduates of other purely literary institutions.

The curriculum of this and other industrial colleges is so arranged that a student virtually receives much of his professional and trade training, at the same time he is receiving his academic training, or he receives much of his academic instruction through his professional instruction, saving both time and expense.

RECOVERY FROM DEPRESSION, CAUSED BY REDUCED APPROPRIATION AND FIRES.

The College has at last recovered from the depressing experience of the sessions of 1888 and 1889. The Legislature of 1888. in its wisdom, reduced the support of the institution for the two years, about $7.000 each year This caused fourteen of its experienced professors and teachers to leave the College within a year, leaving only two of its first professors. In the year 1889, the College was also visited by four disastrous fires, destroying property to the amount of $15 000, in buildings, forage, and improved implements, so that for these two years and the year following (1890), no progress was made, the institution merely held its own.

The Legislature of 1890 was more liberal in its support of the institution. but appropriated only $2.500 to replace the buildings destroyed. This more liberal treatment, coupled with the law of Congress passed in 1890, has fully restored the institution to its former prosperity and confidence. The Faculty is now equal in efficiency and skill to what it was before so many of its number resigned in 1888, and the session of 1891 has been marked by advance and progress in every way.

CONGRESSIONAL AID IN FOUR YEARS.

Congress. having brought the industrial colleges into being, by partially providing endowment in each State by the donation of public lands (1862), has in the last four years shown that it is intended to extend still further aid, in way of enlarging their usefulness. In 1887, it passed a law providing for an agricultural experiment station in each State, in connection with the colleges, and appropriated money for their support. This adjunct, while greatly adding to the usefulness of the College in constituting object lessons for students, was so guarded, that the appropriation could not be used or expended for College-purposes, but must be confined solely to experimental work, paying for it out of its own fund, to its own employees. The money cannot be used to pay salaries of College Faculty.

TO MORE COMPLETELY ENDOW AND SUPPORT INDUSTRIAL COLLEGES.

In August, 1890, Congress again passed a law to apply a portion of the proceeds of public lands to the more complete endowment and support of these colleges, directly aiding the colleges themselves by annual appropriations, the money to be applied only "to instruction in agriculture, the mechanic arts, the English language, and the various branches of mathematics, natural and economic sciences, with special reference to their applications in the industries of life and the facilities for such instruction." No part of the funds could be used for buildings or repairs. The law required that each annual appropriation be divided equitably between the white and colored youth of the State. The Bill appropriated $15,000 for the first year, the amount to be increased $1,000 a year, for ten years, till it became $25 000 annually to each State, when it continued a fixed appropriation. When passed, the law included an appropriation for the previous year, which ended June 30, 1890, although it was not passed till August 1890. The money was not available in Mississippi till near the close of the second fiscal year, ending June 30, 1891 In this way the State received two appropriations, or $31,000, to be expended, virtually after the sessions of the College were over, for which they were intended. This amount was equally divided between this institution and Alcorn A. & M. College, each institution receiving as its share $15,500. The Secretary of the Interior who, under the law, had power to construe its meaning, refused to give Mississippi the third appropriation ($17,000) until the Governor agreed to divide it on the basis of the number of educable children in the respective races, instead of dividing it equally, as in the first two instances. Under this decision Alcorn A. & M. College received nearly six-tenths or $9,378.63, while this College received a little over four-tenths or $7,621.37.

OBJECT AND SPIRIT OF CONGRESSIONAL AID.

The object and spirit of this law of Congress, aiding the Colleges, as stated, was to help the States in proportion as they helped themselves, and to enlarge their sphere of usefulness, and work in these institutions. The aid given with this object in view, supposed that each State will continue and even increase its usual annual support, to enable this new assistance to do the most good to the youth of the State.

CONSTRUCTION OF FEDERAL LAW GIVING AID, BY BOARD OF TRUSTEES.

The Board of Trustees took this view of the help given by Congress, and decided to move forward and enlarge the usefulness of the College. Out of the first two appropriations ($15,500), it paid part of the salaries of the Faculty; bought machinery, tools and equipment, with engine and boiler, for the wood shops at the new Mechanic Arts department; equipped thoroughly the Horticultural department, and put it on the same footing as the Farm department; and provided other apparatus, text books, etc., for the College.

The third appropriation ($7,621.37), which is to be expended for the session just commenced, (1892), was ordered expended as follows: To establish two new departments or chairs, viz: the chair of Mechanic Arts and Drawing, with a professor and two assistants; also the expense of supporting it, such as pay of engineer, coal, material for students to work with, and other necessary expense. The chair of Veterinary Science and Anatomy and Physiology, and expense incident to its support, in way of temporary hospital for clinics once a week, etc. Also a foreman for the Horticultural department. The salaries of the Faculty were re-adjusted so as to pay the professors and instructors the same salaries as are paid the Faculty at the State University, and at other industrial colleges in other States. This was necessary to retain the services of competent men, as was shown by the College losing its Faculty in 1888.

RESULTS OF CONGRESSIONAL AID ON THE COLLEGE.

As a result of this assistance from Congress, the College has taken on new life during the year 1891. It is now what its name purports, viz: "an agricultural and mechanical college," as the mechanical feature has been started. The Board having erected an iron building 100 feet by 50 feet, very substantial in character, and equipped it with a forty horse-power engine and boiler, with forty work benches and kits of tools, with turning lathes, saws, etc., necessary to give instruction to two hundred students in all kinds of shop work in wood. The cost of building was $2,879.00; the equipment so far $4,500.

Shops for machine work in iron, for all kinds of forge work, and for foundry work, and their equipment, have yet to be added. It will take $15,000 additional to finish this new adjunct.

The Board have also erected a building with three large halls for the two literary societies and for the Young Men's Christian Association. The latter organization raised and furnished $800 for its part of the building. The Board furnished the balance, $1,869. The old society halls were over the mess hall, which was destroyed by fire in 1889. This building was insured for $3,000, and the premium was paid by the students and charged to their mess account. The money received from the insurance was only sufficient to put up a new mess hall, but not enough to replace the two society halls as they were. The members of the two societies thought the Board should rebuild their halls, as the students had paid the premium, which saved the building for the State. The Board thought their request a reasonable one, and furnished the new buildings for the use of the societies.

Two new buildings were also erected for the Horticultural department, to be used for the storing of root crops, for packing purposes, and other necessary work in this department. The Board promised the Horticultural Society of the State in 1885 to equip this department and put it on the same footing as the Farm department. They erected these buildings ($975.00) and expended $2,826.00 in apparatus and equipment.

They have also bought one hundred iron cots for use of students, and otherwise equipped the College.

CONGRESSIONAL AID COULD NOT BE USED FOR BUILDINGS AND REPAIRS.

The funds received from the Congressional appropriation could not be expended in buildings, and were otherwise guarded as to their use. All buildings and repairs done by the Board has been paid for out of the appropriation made by the last Legislature, an equal amount of the Congressional fund being used to pay the salaries of the Faculty, which was authorized by the law. But for erection of buildings, the aid of Congress could not have been judiciously expended in the future.

THE COLLEGE GIVEN NEW LIFE AND ENLARGED ABILITY FOR USEFULNESS.

The College with the present session starts with new life and enlarged ability for usefulness. As this is the first report since making a start in the new department of Mechanic Arts, it is appropriate to briefly discuss the theory of management to be followed in this division of our work. As the means at the disposal of the Board was not sufficient to fully equip and organize this new feature, only a start has been made for the instruction of the students in shop work in wood. The manual training feature with tools, machines, and material for wood work, is for the present engrafted on the agricultural curriculum of studies and organization, and and as an addition to the field work, now being given in agriculture and horticulture. In starting this mechanical work, it is not intended in any way to lessen our agricultural bias, which has made the College what it is. It will be impossible to provide a separate curriculum, or course of study in the Mechanic Arts, leading to a degree of Bachelor of Science, until the Legislature provides sufficient means in way of buildings and equipment for machine work in iron, and for forge and foundry work, so that practical manual training can accompany theoretical instruction in all the usual divisions of a Mechanic Arts course. The course of studies will diverge in the agricultural and mechanical course at the end of the Freshman or Sophomore year—the course in Mechanic Arts having more mathematics and drawing than in the agricultural course. Still both courses will lead to the same degree of Bachelor of Science, and the different and dissimilar studies in the two courses will be of equal dignity and importance. A course in shop work in wood is now being given to the lower classes (Freshman and Preparatory.) The upper classes hereafter will take iron and foundry work, when the shops, etc. are finished and equipped.

THEORY OF SHOP WORK INSTRUCTION.

The theory of instruction in this new adjunct will be based on educational methods solely. A definite series of graded exercises or lessons, from simple to more difficult, involving the principles underlying the use of ordinary tools, and machines and materials used in practice in the various steps of carpentry and iron work, is now being given by competent instructors. All shop work will be disciplinary, the students will be taught the use of tools and machines, and having learned one lesson or principle, will proceed to learn another, rather than attempt to make articles of commercial value, which would require too much time, and be too restrictive for educational purposes. The effort will be made, to cover all the essential principles, in the various Mechanic Arts, and acquire fair skill of hand and eye, and develop fully the observing and perceptive faculties of the mind. No attempt will be made to teach any of the trades, but to teach the principles and processes underlying them. The work done by students as they pass from one principle to another, will necessarily be imperfect and of no commermercial value. The instruction will be for education, not profit. It is intended to develop and draw out the natural tastes and aptitudes, during the formative period of scholarship, to aid in the selection of vocations and keep them in sympathy with labor. To show that education will enoble labor and greatly add to its pecuniary value and pleasure. A student going through the course can select any trade and in a very short time get wages beyond those of a journeyman, and aspire to a foremanship or superintendency of manufacturing enterprises. For besides acquring skill, they understand the principles underlying the trades.

The law of Congress and of the State intend that instruction in the Mechanic Arts should be of equal dignity and importance, with instruction in agriculture. Up to this session no instruction has been given in the Mechanic Arts. The mechanics of the State have patiently waited for the Legislature to appropriate money to complete the organization of the College, and fit it for instruction in their different trades. Now that a start has been made through the Congressional appropriation, they ask that sufficient money be set aside to be applied solely to the completion of the department of Mechanic Arts.

ATTENDANCE DURING SESSIONS OF 1890 AND 1891.

The attendance during the session of 1890 was 330 students, 190 being in the College classes and 140 in the Preparatory class. For the session of 1891, 285 students, 169 being in the College classes, 116 in the Preparatory class.

At the beginning of this session, 1892, we now have 280 students.

The College has had full attendance since organization. With enlarged capacity it could have 600 students as easily as 300 annually.

ORGANIZATION OF THE COLLEGE INTO DEPARTMENTS.

There are now eleven departments in the College, necessitating eleven professors, not including the president, who is the executive officer of the Board and Faculty, viz: Agriculture, Horticulture, Mechanic Arts and Drawing, Biology, Veterinary Science and Anatomy and Physiology, Chemistry and Physics, English, Mathematics, Preparatory, Military Science and Tactics, and the Experiment Station. The professor of the Experiment Station department is the Director of the Station, and is paid out of the Station fund appropriated by Congress. The Veterinarian gives one half of his time to the Station work, and he gets one half of his salary from the same fund. The professor of Military Science and Tactics is an army officer and is paid by the government. He is also assistant professor of Mathematics, for which he is paid by the College.

There are also three assistant professors, one in the English, one in the Mathematics, and one in the Preparatory departments, one assistant in Horticulture, two in the Shop work and Drawing, one in the Chemistry and Physics, three in the Preparatory. The Secretary of the Board is also book-keeper, treasurer, and business agent of the College. The Steward and Proctor has charge of the large mess hall for students, and also has charge of all public buildings. There is also a Steward in charge of the hospital, who is the nurse for sick students, and there is also a night watchman.

The Surgeon lives at the College and is paid by a fee from each student, which minimizes the expenses of students in case of protracted sickness.

SALARIES.

To sum up, the Faculty paid by the State, are :

1 President	$ 2,500 00
7 Professors	14,000 00
1 Professor	1,500 00
1 Professor	1,200 00
1 Assistant Professor	1,000 00
2 Assistant Professors	1,600 00
7 Tutors and Teachers	3,750 00
1 Secretary, Treasurer and Purchasing Agent	1,200 00
1 Steward and Proctor	1,010 00
1 Hospital Steward	360 00
1 Night Watchman	360 00
1 Librarian	150 00
	$ 28,630 00

REPORTS OF THE DIFFERENT DEPARTMENTS.

The reports of the professors and other officers are attached as a part of this report, and your careful attention is invited to the details, as given by them. I deem it only necessary to mention them.

DEPARTMENT OF ENGLISH.

The instruction in the department of English is as thorough and systematic as it can well be, with the amount covered in the course. There should be two chairs to cover what is taught, and I recommend the establishment of a chair of History, Political Economy, and Civil Government. I refer for details to the report of Professor Magruder.

DEPARTMENT OF MATHEMATICS.

The department of Mathematics is ably and enthusiastically conducted, theoretically and practically. Now that the Mechanic Arts are being added, it is necessary for this department, which teaches the theory, to be better fitted up with apparatus for illustration, to demonstrate and illustrate the principles of mechanism, in pulleys, forces, wedges, screws, wheel and axle, and strains on the parts in the different forms of roof and bridge trusses.

It will require $1,500 to supply this apparatus.

DEPARTMENT OF CHEMISTRY AND PHYSICS.

Chemistry and Physics, which are so important in agriculture, is theoretically and practically taught in a well equipped laboratory. This department annually sends out several competent chemists, who command good salaries. I call your attention to the necessity of the Legislature making some change in the present fertilizer law, for as it stands on the Statute books, it affords little protection to our farmers who purchase fertilizers. We should have a law similar to the Alabama and Georgia law, requiring a more thorough inspection of fertilizers sold in the State, and putting the onus of proof on the manufacturer. The samples analyzed at the College may be all right without the articles purchased by the farmer coming up to the standard. This trade is becoming a large one, and about 75,000 tons are sold annually, and in a few years it will be double that amount.

DEPARTMENT OF BIOLOGY.

The department of Biology is relieved of two branches hitherto taught in it, viz: Veterinary Science and Anatomy and Physiology, which now constitutes a separate chair. There still remains Geology, Botany, Entomology, and Zoology, enabling the professor to more thoroughly teach these sciences and give more attention to practical out-door and laboratory work. Up to this time too much has been attempted in this department for the efficient work of any one man. The teaching has been quite thorough as far as it went.

DEPARTMENT OF VETERINARY SCIENCE, ANATOMY AND PHYSIOLOGY.

This is one of the new chairs established, through the assistance received from Congress. When we consider the great live-stock interests in the State, and the great losses every year to our people from the lack of information in the treatment of diseases, and in the ordinary care of an animal, it is a wonder that the demand for this chair has not been greater. The College has secured the services of Dr. Tait Butler, an experienced practitioner and surgeon, who divides his time between instruction to students and original experimental work in the Station. He has established a free clinic, once a week, of three hours on Saturday, when he treats, free of charge, all diseased animals, and performs surgical operations in the presence of his classes. Although these clinics have been conducted but two months, animals are being brought from a distance, and they are developing great interest among all classes, and great crowds come to them; showing that in each county in the State, a competent veterinarian could make a good support and be of great benefit to the people. The Doctor is never able to treat all the animals brought to him any one day. He also teaches Anatomy and Physiology to the students.

DEPARTMENT OF MILITARY SCIENCE AND TACTICS.

The department of Military Science and Tactics has been ably administered by the United States officer, First Lieutenant John V. White, 1st Artillery, who has been at the College nearly three years. Besides the prescribed studies in his chair proper, he is also Commandant of Students, and directly supervises the discipline under the control of the president. He is also the Assistant Professor of Mathematics. This officer is soon to be relieved, and I take pleasure in testifying to his efficiency in the administration of all his duties. Although but temporarily at the College, he showed a most lively interest in the welfare of the institution. He carries away with him the respect of

Faculty and students. Although a firm disciplinarian, by his kindness of heart in administration he has attached himself to the body of students, and many regret his departure.

PREPARATORY DEPARTMENT.

The Preparatory Department which usually has one-third of the students under instruction, is ably conducted by the professor in charge. The effort is constantly being made to enlarge the course so as to teach as much as possible to the great number of boys who cannot attend the College more than one year. Book-keeping, drawing, shop work, and the elements of agricultural science are taught in addition to common school studies. Attention is called to the large number of students of advanced age who enter this department. For the last two years, each year more than fifty boys have been over eighteen years of age, and eighteen over twenty years of age. This is the only school in the State where young men of advanced age and limited education can come without being mortified by being classed with children much younger. A student here, even if he makes little progress in books, gets a fair education in seeing what is going on in the different departments of the College, in the farm, gardens, dairy, with stock, in the shops, and in the work of the Experiment Station.

FOUR INDUSTRIAL DEPARTMENTS.

I will now treat of the four industrial departments separately, but grouped together.

DEPARTMENT OF AGRICULTURE.

The department of Agriculture, which includes theoretical instruction in the class room, and practical supervision and instruction in the farm. is in charge of one professor. The details are given in the report, as to instruction and student labor. The farm department proper has about recovered from the effects of the fires in the fall of 1889, just before the meeting of the Legislature. Some stock had to be sold to aid in replacing the barns, sheds, wagons, improved implements, and other property destroyed. such as the full supply of hay and grass for the winter of 1889. These losses amounted to over $10,000. As the State gave no assistance whatever, to replace buildings or property of any kind the farm recovered entirely from its own resources. There could be no greater evidence of the efficiency, and management of this department than this fact. to be able to recover its losses and at the same time meet all of its running expenses for the two years.

I direct the attention to the statment of valuable facts, from the experience of the farm, as to feeding stock, as to hay, grasses, clovers, feeding rations, yields of corn, cotton, etc., also as to the recovery of fertility in the soil, eradication of Johnson grass, and other matters of interest and value to the farmers of the State. The department is in excellent condition and ably managed.

DEPARTMENT OF HORTICULTURE.

The department of Horticulture, is now better equipped and conducted than since the organization of the College. Theoretical instruction is given in the class room to nearly all students, and practical instruction in the field, garden, orchards, vineyards, nurseries, etc. The Board of Trustees in 1885, promised the Horticultural Society of the State, to put their department on the same footing as the farm department. The recent aid of Congress, has enabled the Board to carry out this promise, and about $4,000 has been expended in this direction. The money has been judiciously spent, and I feel confident, what has been done will add greatly to the progress of the College, and the instruction of students.

DEPARTMENT OF "THE AGRICULTURAL EXPERIMENT STATION."

The work of the Agricultural Experiment Station to this time, has been in the direction of practical field work with crops, fruits, vegetables, and stock, the immediate object being to assist the farmers of the State as early as possible in the direction of a more intensive and remunerative system. Three branch stations have been established, one at Holly Springs, where fertilizer work with cotton was mainly carried on; another at Ocean Springs, for work with semi-tropical fruits, rice, sugar cane, and vegetables; and another at the Patrons Union, in Newton county, to experiment with cotton and grasses; these three points representing fairly the geological districts of the State. "The principal lines of experimentation have been with commercial fertilizers for cotton and corn, varieties of cotton, the cultivation of wheat, flax, and grasses, and the feeding of different kinds of hay for both milk and work stock, and in fruit culture. The work with fertilizers, shows very plainly that for the yellow clay loam region, embracing the Northwestern portion of the State, potash is more essential than is any one other element; that for the pine wood region phosphoric acid should be added, and that in very few localities, does an application of nitrogen give profitable results. With the rapid increase in the use of commercial fertilizers, these facts will have a marked influence over their manufacture, and must result in a great saving to consumers. It is too soon to speak definitely of the results of wheat and flax, but the wheat crop of the present season yielded twenty-seven bushels per acre of grain, which graded as "number two red winter." The flax was grown from cultivated Calcutta seed, and the Secretary of the National Linseed Oil Company, pronounces the crop "a better sample of seed than can be produced, or has been produced in any other part of the United States. Should future crops prove as successful as were those of the present season, two new and important industries will be open to the planters of the Southern States. In feeding experiments it has been shown that southern grown hay is fully equal to that shipped here from the North, and is much more economical." This quotation is from the report of Professor Tracy, Director of the Station. The farmers of the State are not taking as many of the published bulletins and reports of the Station as they should. These they can get without expense, if they will only send in their names to the Director, and request that they be sent.

DEPARTMENT OF MECHANIC ARTS AND SHOP WORK.

I refer with pleasure, to the clear report of Mr. Harry Gwinner, the Superintendent of the Mechanic Arts shops. As stated, the mechanical feature for the first time, is added during the present session. The Board of Trustees has had erected shops for wood work, and the College is now instructing over two hundred students in carpentry, pattern making, wood turning, etc. This has been done at an expense of about $8,000. With this start, we now ask the Legislature to add a new building, and put an additional story on the carpenter shop we now have, at a cost of $5,000, and to finish equiping the shops with forges and tools, with foundry apparatus and tools, and also with machines for all kinds of iron and metal work. This will cost about $10,000. The details are clearly explained and stated in Mr. Gwinner's report attached, and what is asked for, is needed to put the shops in efficient running order. With these shops, our organization as an Agricultural and Mechanical College will be complete, and the College will fill a long felt want in preparing our boys to fill important positions in our State, and avoid having to import mechanics and workmen from other States. Our College is one of the very few not provided with shops. Both the United States and the State law makes shop instruction of equal dignity and importance with agriculture.

HEALTH.

The health of the body of the students has been excellent, during the last two sessions; in fact there has been only one death of a student in the last eight years. The report of the surgeon, Dr. Barr, gives every necessary detail as to the sanitary condition of the College, and such other matters as fall under his supervision.

STEWARD AND PROCTOR.

This important department has charge of the boarding of students, and of the care and repair of all public buildings, and is ably managed by a competent and conscientious gentleman. The new mess hall, erected to replace the one destroyed by fire, has many conveniences over the old one. The food is well prepared and served, and for the last two years at an average monthly cost of eight dollars and forty cents.

PROCTOR.

The main buildings have greatly needed repairs for four years. Owing to short appropriations, this could not be done till the present year, when the most necessary work has been done Considerable repairs are needed to make them safe and comfortable. The wooden veranda on two sides of the present Academic building has always been considered unsafe, although constantly repaired. About the opening of the present session, a portion of this veranda gave way, under the crowding and rushing of about thirty boys, severely injuring one and hurting several others, confirming our fears as to its safety. It has been condemned in the report of the appraising committee. Prudence demands that this wooden veranda be removed and replaced by an iron one, to make it safe for the three hundred Mississippi boys who annually attend the College, and the thousands of our citizens who visit our commencements. The building must also be tied more securely by iron rods, as the walls are cracking badly. The State should make an allowance for the repair of its buildings, valued at $109,300. The cost of the iron veranda will be about $2,500.

LIBRARY.

The library is the greatest want connected with the College and is totally inadequate to our development and necessities. In the twelve years the College has been in operation only about $2,200 has been spent for bound volumes of books. This money bought 1266 volumes, 551 of these being technical books of reference for the scientific departments, and only 715 volumes of a literary and miscellaneous character. These 1266 volumes, from constant use by over

2,100 students, or 314 each year in average attendance, are nearly worn out by handling. Our students greatly need increased facilities in this line. There are in addition to these named 1928 volumns of Public Documents, received from the departments in Washington and from State libraries. This plain statement of facts is sufficient basis on which to ask $5,000 for purchase of books. I refer to the report of Librarian, Professor Magruder, and also to the report of the appraising committee.

COMMITTEE TO APPRAISE PUBLIC PROPERTY.

I invite special attention to the able report of the appraising committee appointed by the Governor, to appraise the public property at the College.

The committee consisted of Hon. J. H. Beeman, Hon. J. H. Duke, and Captain John Powell. They value the property at $225,950, an increase of $37,332 over appraisement of two years ago. This increase arises mainly as follows, viz: The rebuilding of the Presidents house by the State, rebuilding of mess hall from the insurance received, erection of mechanical shops, society halls, and Y. M. C. A. hall as explained, erection of horticultural buildings, as work houses and for storage of crops as explained. Additions to station buildings, and erection of two small houses for its employees out of station funds received from Congressional appropriation for its support, replacing of barns and sheds, and implements by the farm department out of its own funds, (for this department is self-supporting,) and enhancement of College property. This is certainly a very gratifying exhibit following the fires of the fall of 1889, entailing a loss of $15,000 on the College.

The committee make several recommendations, viz: That a new scientific building be erected; that new shops be erected and equipped to complete the organization of the mechanic arts department; that the library be added to; that a new iron veranda be erected in place of the wooden one, which is unsafe on the Academic building; that better facilities be furnished for writing room; that a better office be furnished for the United States officer at the College; and other suggestions of value.

INSTITUTION HAS OUT-GROWN ITS PRESENT PROPORTIONS.

The report of Committee of Appraisers, impresses me with the glaring fact, that the College has grown beyond its present proportions, with the recent aid of Congress, and additional chairs, since none of the funds given by Congress can be used for the erection of buildings. The College needs enlargement to utilize properly the facilities and accomplish the purpose for which it was established. The citizens of Mississippi do not appreciate its magnitude or its ability to benefit the State in educating our youth of moderate means in the industries of life, to fit them for the duties of citizenship. Impressed with this belief, I invite the Legislature to visit and inspect the College, and see its workings, by committee or otherwise. It would be poor economy, with our present plant and prospects, and the aid being extended by Congress, not to liberally support and add to the College, to utilize it to the best advantage.

NEEDS OF THE COLLEGE.

The College needs a steady support. This is apparent from what occurred in the years 1888, 1889, and 1890, as compared with the year 1891, with more liberal support by the Legislature, and the aid extended by Congress in the act of August 1890.

The Legislature has generally given an annual support of $31,500. With this support still extended, and using the Congressional aid for support of additional chairs and enlargement, the College will move steadily forward. Really the State has only given $25,000 annually, as the interest on the scrip fund, is included in the $31,500, and is the endowment given by Congress.

The teaching room is now only half enough for our necessities, and barely sufficient for instruction in English and Mathematics, and for use of Preparatory students. We need another building of the same size as our present Academic building. A new building is needed for instruction in agriculture, horticulture, biology, veterinary science, for library and museum. This new building is needed for the scientific departments, as now the writing room, museum, biology, and veterinary science rooms and library are in the basement of the domitory, in apartments badly lighted, and in every way unsuited for them. Instruction in agriculture and horticulture has been given in small rooms, in library, and in any apartments that could be utilized, such as Chapel, and other convenient places. A new building for the scientific department is almost indispensable, and will cost about $20,000, such a building will enable the College to correct the condemnations of the appraising committee.

The United States officer stationed at the College by the government, has occupied rooms in the basement of the dormitory. These rooms being in the same building as three hundred students, are inconvenient for a family and lack privacy. I recommend a building be erected for the use of this officer and family, $1,500 will erect it. The College needs an additional building and its equipment for shop work, the details are given, cost $15,000. The department of mathematics needs apparatus to illustrate theory of mechanics and engineering, approximate cost $1,500. The departments of biology and veterinary science jointly need instruments and apparatus, approximate cost $1,500. It is necessary for the Legislature to take legislative action to secure the full benefits of the recent law of Congress, passed August 10, 1890, to further endow and support industrial schools. The Governor, during the absence of the Legislature, has acted temporarily, so as to secure for the time being the benefits of the law.

ATTENDANCE BY COUNTIES.

The attached table will show the attendance of students by counties. It appears that only six counties have failed to patronize the College since the last biennial report, and that sixty-nine out of seventy-five counties have had students at the College.

FINANCIAL REPORT.—LEGISLATIVE SUPPORT.

I call attention to the careful statement of the finances by the efficient Secretary and Treasurer, Mr. R. C. King. The report shows sufficient funds to carry the College to January 1st, 1892.

The last Legislature gave the College for support $27.500, each for the years 1890 and 1891, which amount included the interest on the land scrip fund, also $2,500 to rebuild the President's house, destroyed by fire, and $1,260 to insure public buildings.

The Farm department, Horticultural department and Chemical department are self-sustaining, and have been since 1885. The receipts, however, are not more than sufficient for their support and development; the only exception being in a more complete equipment and fitting up of the Horticultural department, to give better object lessons to the students in their out door practical work.

The College will need $31,500 for its support each year, for the next two years, this was about what it received from the State prior to 1888. Large additions have been made to the Faculty, but the annual assistance received from Congress, if continued, will meet the additional expense. This refers to the annual support, necessary to keep up the College as now organized.

The additions recommended, and necessrry to utilize the advantages of the institution to their fullest extent, will require an appropriation of $50,000, viz:

New Scientific Building	$ 20,000
Equipment of same	3,000
New Mechanical Building	5,000
Equipment of same	10,000
Library	5,000
Iron veranda (present Academic building)	2,500
House for United States officer	1,500
Equipment of Mathematical Department	1,500
Equipment of Biological and Veterinary department	1,500
	$50,000

FACULTY, OFFICERS AND TUTORS.

No institution ever had, in my judgment, a more earnest, hard-working and conscientious corps of professors, tutors, and officers. Their loyalty to the State and College, with salaries less than that paid at other similar institutions, for most of the four years, has made it again a self-reliant, aggressive, and progressive institution, capable of lifting up the industrial classes in Mississippi. I concede to them the credit of safely tiding the institution into a safe haven, so far as Faculty and officers can do their duty.

STUDENTS.

The students, as they have always been, are worthy, earnest, and persistent. In conduct, discipline, and application, they have done their full duty.

BOARD OF TRUSTEES.

I take this occasion to thank the Board of Trustees for their continuous confidence in my management as president. I feel that their loyalty and fidelity to the people of the State, in the performance of their (at times) delicate trust, has safely placed the College on a permanent basis. The institution has gradually gained the confidence of the people, and for the last two years not a voice has been raised publicly against its management.

Respectfully submitted,

S. D. LEE,
President.

ATTENDANCE BY COUNTIES.

COUNTIES.	1889–'90	1890–'91	1891–'92	COUNTIES.	1889–'90	1890–'91	1891–'92
Adams	7	5	2	Madison	8	7	12
Alcorn	1	1	0	Marion	0	0	1
Amite	5	4	0	Marshall	4	2	4
Attala	9	6	3	Montgomery	0	0	0
Benton	1	0	0	Monroe	2	2	1
Bolivar	3	1	2	Newton	1	4	5
Calhoun	2	0	0	Neshoba	6	1	0
Carroll	8	7	7	Noxubee	8	7	7
Chickasaw	5	2	1	Oktibbeha	55	46	49
Choctaw	0	0	1	Panola	2	4	3
Claiborne	2	5	1	Perry	2	6	5
Clarke	6	6	8	Pike	5	4	5
Clay	6	5	6	Pontotoc	0	0	3
Coahoma	0	1	1	Prentiss	2	0	1
Copiah	4	8	8	Quitman	0	0	0
Covington	5	0	0	Rankin	4	2	1
De Soto	3	2	4	Scott	7	3	1
Franklin	0	0	0	Sharkey	3	2	0
Greene	0	1	0	Simpson	1	0	0
Grenada	2	0	2	Smith	0	0	0
Hancock	4	1	1	Sunflower	4	4	3
Harrison	1	0	0	Tallahatchie	5	1	1
Hinds	9	7	6	Tate	13	4	2
Holmes	19	16	12	Tippah	0	1	2
Issaquena	1	5	3	Tishomingo	0	0	0
Itawamba	0	1	1	Tunica	1	1	0
Jackson	3	2	0	Union	1	5	4
Jasper	2	0	2	Warren	2	4	10
Jefferson	1	6	4	Washington	3	5	6
Jones	6	5	4	Wayne	1	0	1
Kemper	5	5	1	Wilkinson	14	8	9
Lafayette	3	2	2	Webster	2	0	1
Lauderdale	9	23	21	Winston	0	0	0
Lawrence	0	1	0	Yalobusha	2	1	0
Leake	6	2	2	Yazoo	7	6	14
Lee	1	4	2	State of Ala	1	1	1
Leflore	1	1	1				
Lincoln	0	0	2				
Lowndes	13	16	12				
TOTAL					319	282	275

OCCUPATIONS OF GRADUATES.

Statistics of First Ten Sessions, Showing the Number of the Graduates of the Agricultural and Mechanical College of Mississippi Engaged in the Various Occupations:

Farmers	13
Farming, with other occupations	7
Horticulturists	6
Engaged in agricultural experiment stations	3
In charge of creameries	3
Teachers	14
Lawyers	11
Book-keepers	6
Merchants	4
Engineers	4
Physicians	4
Clerks	2
Ministers	1
Medical students	7
Deceased	3
Occupations unknown	1
Male graduates	89
Female graduates	2
Total	91

The above shows that of the 86 male graduates living, 32, or 37 9-43 per cent., are engaged in farming and kindred pursuits.

Compiled at the request of the President by J. C, Herbert, Class of '87.

Report of Committee of Appraisement.

Agricultural College, Miss.,
November 18, 1891.

To the Honorable Body, the Legislature of Mississippi:

In the performance of our duty as appraisers of the property of the Agricultural and Mechanical College of Mississippi, we beg leave to submit the following:

College buildings	$109,300 00
" land, 1,770 acres	40,000 00
" land, 52½ acres, embracing orchards, vineyards, gardens, etc	10.500 00
" miscellaneous	6,930 00
" hospital	440 00
" library	4,000 00
" museum	3,500 00
" stewards	3,980 00
" chemicals	4.000 00
" mechanical	3,900 00
Horticultural buildings, implements, stock, produce, etc	4,400 00
Farm, buildings, machinery, implements, produce, stock, tools and, creamery	20,000 00
Experiment Station, buildings, machinery, stock, chemicals, apparatus, etc	15,000 00
Total	$225,950 00

We have found the buildings in good condition with some few exceptions, to which we call your attention. Several buildings—the President's residence, the dining hall, the society building, the mechanical building, experiment station building, several residences for professors, the horticultural hall and two barns—have been erected since the last report was made, and are all in fine condition—being neatly and substantially built.

The Experiment Station building and the two buildings erected for officers are built by the station, or out of the appropriation by the United States, and not by State funds.

The farm we have found to be in good condition—its fertility and value being greatly increased by scientific and judicious management. Much of the land has been greatly enhanced in value by a system of tile drainage. The value to which this land may be raised under its present skillful management is almost beyond computation. The Horticultural Department is a marked success, and gives evidence of skillful and scientific management. The herd of cattle is valuable and an examination of it will convince one of the advantages of raising superior stock, and giving to this industry more attention. The Creamery established at this College was the inauguration of a new industry in the State, and one which promises to be of great interest to the people.

The advantages which must result from the establishment of the Experiment Station can hardly be calculated. The very superior advantages enjoyed by this station in making agricultural and horticultural experiments together with stock feed with reference to producing milk, butter and beef, may be enjoyed by every famer and stock raiser simply by applying for it. It is certainly worthy the commendation and encouragement of our entire people.

The addition of a Mechanical Department to the College, as was originally contemplated, contributes very materially to its importance, and should serve to renew the energies of its friends to make it a success by liberal appropriation and patronage. The thorough equipment of this branch of the College, a liberal support of the Agricultural Department together with the superior literary advantages here enjoyed, place it within the power of our boys to become scientific farmers, skillful mechanics, or honored and useful citizens in any vocation. We feel that Mississippians and especially the agricultural and mechanical classes, should be proud of this institution and extend to it a fostering care.

We would respectfully and earnestly call the attention of the Legislature to the following needed additions and repairs:

The Mechanical Department to which we have alluded and the importance of which is so evident, is far from being complete. At present the work of this department extends only to wood, when it should by all means be made to embrace machinery and appliances for work in the metals. An appropriation for this extension is recommended.

We found upon examination that the veranda of the College building is in bad condition and really unsafe. One constructed of iron, now very little more expensive than wood and much more secure, is recommended.

The bath room is sadly in need of renovation, and at a trifling expense, these promoters of health might be made to meet the requirements contemplated in their construction.

The writing room and all of its equipments we found in such unsightly and dilapidated condition as to preclude any estimate of their value. Absence of either comfort or convenience was characteristic. We earnestly recommend a complete overhauling and refitting of this section.

The Commandant's office we found bare of convenience. With very little expense this office might be made to wear the appearance of a place in which an important attache of the College transacts important business.

The library of the College contains many valuable books, but not a few of these are much worn. It is our deliberate opinion that it is entirely inadequate to the demands of such an institution of learning as the A. & M. College with its present patronage and promises of future usefulness to the young men of our State. We recommend that provision be made by which the students attending this College may be provided with the necessary books of reference without which their chances of complete success will be seriously impaired.

In order that the aims and purposes for which this College was established be successfully carried out, we believe that an additional building should be constructed. Said structure to be designated as the "Scientific Building." Some provision of this kind seems indispensible, as there is not at present sufficient room in the College for the various classes, while the increased interest of the people in this institution will create a demand for enlarged accommodation.

In making an examination and appraisement of this property we have enjoyed what we deem to be superior opportunities in observing the methods employed in imparting instruction in the agricultural and mechanical science, in successful stock raising, and in high literary culture; we have further been enabled to note the good which has already been accomplished by this College, and to form some idea of its possibilities in the future for bestowing benefits upon the young men of our State, especially those who from choice or necessity propose to follow agricultural and mechanical pursuits.

The department of Veterinary Surgery recently established in the College is one of the greatest importance, especially to the agriculturists of the State. It is a well known fact that very great loss results almost annually to this class of our people in the death of horses and mules from various diseases, but especially from epidemics; such as charbon and murrian in cattle, cholera in hogs, etc. This department investigates the causes of these and similar diseases, suggests preventions and prescribes cures. Reports of these investigations and cures are placed within the reach of our entire people.

We take special pleasure in testifying to the faithfulness, energy and efficiency, of Gen. S. D. Lee, President of the College, and of the entire Faculty, including the accomplished and accommodating Secretary, Mr. King, to whom the committee is under many obligations for assistance in securing data upon which this report is predicated.

In conclusion, we most earnestly urge upon the Legislature as the representatives of the people of Mississippi to whom this institution belongs, to give its claims favorable consideration, and as liberal support as the finances of the State will allow.

The right of this institution to live and its demands upon the people through their representatives, the Legislature, for support and fostering care is fully demonstrated in the marvelous work it has already wrought, and the promise of increased usefulness in the future under wise and judicious support and management.

(SIGNED) J. H. BEEMAN,
JOHN POWELL,
JAMES H. DUKE.

REPORT OF SECRETARY.

AGRICULTURAL COLLEGE, MISS.,
November 25, 1891.

Gen. S. D. Lee, President A. & M. College:

SIR:—I submit herewith my report as Secretary, embracing a statement showing the total receipts and disbursements since November 28th, 1889.

The general legislative appropriation combined with the amounts received from matriculation fees, etc., has been expended for salaries, student labor, building and equipment, repairs on buildings, postage, stationery, traveling expenses of trustees, commencement expenses, for pay of minister, and for general incidental expenses. Additional buildings have been erected from this fund by drawing an equivalent amount from the appropriation made by Congress, in aid of Colleges of Agriculture and the Mechanic Arts, with which to pay salaries.

The Board of Trustees, at its meeting in June, ordered that the College pay the full salaries of some of the professors, whose work has been divided between the College and Experiment Station, instead of part being paid from the Station fund, for Station work, and the balance from the legislative appropriation as has been done heretofore. This, together with the salaries of the professors elected to fill the new chairs, recently added, will necessarily increase the expenditures from the legislative appropriation. Three thousand dollars was received for insurance on the mess hall that was burned two years ago, and the same has been expended in replacing the new hall now in use.

The Y. M. C. A. gave eight hundred dollars to aid the Board of Trustees in completing a hall for their use in connection with halls for the two literary societies. The same was added to the appropriation made for erecting the society halls and the building has been completed.

One hundred iron bedsteads have been bought and placed in the dormitory for the use of students who are charged a small fee for the purpose of keeping the bedsteads in repair.

Some of the wild lands, donated to the College by citizens, have been sold and the amounts received for them have been used in paying salaries.

The amount appropriated by the Legislature for insurance has been spent, and yet some of the new buildings are not insured owing to a lack of funds for that purpose. Now that we have about recovered from the damaging fires of two years ago, having added some new and valuable buildings, the amount of money for insurance should be increased sufficiently to allow insurance on every building on the grounds not used for a dwelling or for other private purposes.

We have with the State Treasurer about what money will be required to pay salaries, student labor, incidentals, etc., to January 1st, 1892, as will be shown by the statement accompanying this report.

Please find the figures referred to above under the head of

GENERAL STATEMENT

Of Receipts and Disbursements, A. & M. College, from November 28, 1889, *to November* 28, 1891.

RECEIPTS.

From State Treasurer:		
" Appropriation, including interest on land scrip	$53,669 58	
From appropriation for insurance	1,260 00	
" appropriation for erecting President's house	2,500 00	
		$57,429 58
From matriculation and tuition fees	$ 1,605 00	
" Phenix Insurance Company; insurance on mess hall burned	3,000 00	
From Young Men's Christian Association for society halls	800 00	
From sale of land	243 35	
" Rent of iron bedsteads	48 00	
" Miscellaneous sales	23 86	
		$ 5,720 21
From amount transferred from Experiment Station fund to pay station work	$ 4,202 30	
		$ 4,202 30

(General Statement continued.)

From amount transferred from United States appropriation for salaries to release an equivalent amount from State appropriation as explained in President's report	$ 9,732 43	
		$ 9,732 43
From Fees for chemical analyses	$ 3,257 50	
“ Fees from students for chemicals and glassware	290 00	
		$ 3,547 50
From Farm Produce:		
“ Beef cattle	$ 3,186 15	
“ Pure bred cattle	1,868 25	
“ Milk	3,100 13	
“ Butter	1,464 95	
“ Field crops and seed	929 82	
“ Hogs	235 63	
“ Rent and miscellaneous sales	584 77	
		$11,369 70
From Horticultural Produce:		
“ Vegetables	$ 966 33	
“ Plants	580 11	
“ Fruits and berries	885 31	
		$ 2,431 75
Balance cash on hand Nov. 28, 1889	$ 1,486 26	
Less creamery cash not included	30 71	
		$ 1,455 55
		$95,889 02

DISBURSEMENTS.

For Salaries	$43,443 22	
		$43,443 22
For Student Labor	$7,784 22	
		$ 7,784 22
For Building President's House	$ 2,500 00	
		$ 2,500 00
For Insurance	$ 1,260 00	
		$ 1,260 00

(*General Statement Continued.*)

For Building and Equipment, including Mess Hall	$12,551 67	
For Repairs on buildings	2,646 48	
“ Incidentals	5,376 82	
“ Printing, postage and stationery	1,364 05	
“ Books, papers and periodicals	147 15	
		$22,086 17
For Chemical Expenses:		
“ Apparatus and chemicals	$ 2,263 96	
“ Analysis of fertilizers and labor	1,017 91	
“ Fuel	33 45	
“ Postage and stationery	79 23	
For Farm Expenses, Equipment and Development:		$ 3,394 55
For Labor	$ 4,776 55	
“ Beef cattle	1,254 20	
“ Pure bred cattle	203 34	
“ Machinery and implements	780 27	
“ Feed	1,059 84	
“ Buildings	1,395 26	
“ Fertilizers	312 08	
“ Fencing	258 41	
“ Seeds	727 71	
“ Repairs	334 17	
“ Printing, postage and stationery	37 64	
“ Milk herd	289 91	
“ Land	471 75	
“ Hogs	160 40	
“ Teams	265 00	
“ Field crops	98 12	
“ Miscellaneous	4 85	
For Horticultural Expenses, Equipment and Development:		$12,429 50
For Labor	$ 1,593 23	
“ Implements	293 59	
“ Box material	109 10	
“ Fertilizers	11 00	
“ Seeds and plants	271 36	
“ Feed	38 45	
“ Printing, postage and stationery	36 35	
“ Permanent improvements	125 78	
“ Nursery stock	21 77	
		$ 2,500 63
Balance cash on hand		490 73
		$95,889 02

Respectfully submitted,
R. C. KING, Secretary.

DEPARTMENT OF ENGLISH.

W. H. MAGRUDER, PROFESSOR.

AGRICULTURAL AND MECHANICAL COLLEGE OF MISSISSIPPI,
November 13, 1891.

General S. D. Lee, President :

Dear Sir—In accordance with precedent and law, I submit the following report of my work in the Department of English and of my supervision of the Library during the sessions of 1889–'90 and 1890–'91, embracing a period covering two college years.

While other schools have departments in which are taught ancient languages, and modern languages other than English, this institution, like most of the industrial schools, puts the entire work of cultivating the human power of verbal expression upon one department, and, in addition, places the broad subjects of political economy, civil government, and history under the control of the same department. In this day of specialization, when all recognize that no one can attain his highest usefulness except in a limited sphere, I take it that the present organization of this department in our College, and in other Colleges of a like character, is not in accord with the more advanced ideas of modern thinkers. It seems to me that this is an opportune time, when the College is in its transition stage, passing from the simple organization of its first decade of work to the final form that its work will assume, to recommend for my department a new organization that will be more efficient than the one under which we are now working. This has been suggested in several previous reports, but has never been brought prominently forward as a recommendation.

One purpose of this report will be to discuss the possibility of a more efficient organization; and in order to do this we must look at the work done for the last two sessions.

During the collegiate year of 1889-'90, one hundred and ninety (190) students were enrolled in this department; of these, ninety (90) were Freshmen; forty-nine (49) were Sophomores; twenty-three (23) were Juniors; seventeen (17) were Seniors, and eleven (11) were Post-graduates. During the session of 1890-'91, one hundred and sixty-seven (167) students received instruction in this department, of whom eighty-four (84) were Freshmen; forty-three (43) were Sophomores; twenty-three (23) were Juniors; fourteen (14) were Seniors, and four (4) were Post-graduates.

The primary object of the instruction given in this department was to impart to these students a practical knowledge of English as a vehicle for the expression of thought, either oral or written; and in other branches embraced in the department to present the fundamentals only. To this end it was proposed:

1. To give (a) a critical knowledge of our vernacular in its grammatical and idiomatic constructions; to give (b) a general knowledge of its etymological history and the history of its relation to other languages; and finally to give (c) such a knowledge of its literature as could be acquired in the very short time allotted for its study.
2. To teach the elements of criticism, real, logical, verbal and æsthetic, and their practical application to the accurate expression of those industrial and scientific ideas which the student obtains from the instruction given in other departments.
3. To give an accurate knowledge of English history and a general knowledge of the history of the world.
4. To teach the fundamental principles of political economy and civil government.
5. To present to post-graduate students a general view of psychology and logic.
6. To give every student a facility in the oral and written expression of thought commensurate with his ability to think.

To accomplish these purposes the following work was done:

FRESHMAN CLASS.

The English sentence in its simple, complex, and compound forms was carefully studied, the adjunct professor of the department devoting twenty (20) hours per week to this instruction every forenoon during the first two terms. In the afternoon the same class was taught three hours per week in declamation and composition. In the third term my assistant taught the subject of English history fifteen (15) hours per week in the forenoon, and in the afternoon criticised the essays of this class, and also organized and held a contest in declamation for the medal awarded by the Department of English "to the best declaimer of the Freshman class." During the same term this same class took English phonology and etymology in conjunction with lectures on the history of our language, fifteen (15) hours per week under my personal tuition.

Biography constituted the collateral reading of the class, special prominence being given to the biographies of scientists and of men who have influenced the industries of the world.

SOPHOMORE CLASS.

The members of this class pursued the study of rhetoric during the first and second terms, discussing style under its various sub-divisions of clearness, unity, energy, strength, and harmony; the origin and use of figures of speech; and the different kinds of composition—six extended papers being prepared by each member of the class during the six months of each session that this study occupied.

Biography, under the same limitations as those required in the Freshman year, constituted the collateral reading of this class.

JUNIOR CLASS.

During the first term of the collegiate year the study of criticism in its various branches, real and logical, verbal and æsthetic, was pursued. Noted English works were read and the canons of criticism applied in estimating the literary rank of these works. Two essays were read by each member of the class on subjects connected with their work.

The first half of the second term was devoted to a brief study of the fundamental principles of political economy; the second half, to an examination of the principles of civil government as exemplified in the Constitution of the United States. Two essays were prepared by each member of the class on subjects connected with these two studies.

During the third term the subject of general history was studied under the tuition of the adjunct professor, J. M. White, the text-book information being supplemented by lectures, maps, and illustrations of various kinds. During this work, two essays on historical subjects were prepared by each member of the class.

The collateral reading of this class was elective, the only limitation being that the author read must be standard.

SENIOR CLASS.

The study of the history of general literature during the first and second terms, the reading of English classics, and English translations of the works of a few great authors who have written in foreign languages, and the preparation of four (4) extended essays and two (2) public addresses constituted the last under-graduate work in the Department of English, if we except the preparation of the final thesis which are presented to this department for approval by all candidates for the degree of Bachelor of Science.

POST-GRADUATE CLASS.

The course in this department, leading to the degree of Master of Science, covers two years, and during the first term of the session of 1889-'90, Post-graduates studied psychology, standing their final examinations the last week before the holidays.

For the first term of the session of 1890-'91, Post-graduates took logic, final examinations being held at the same time that the examinations in psychology were held the previous year. During the remaining terms of both these sessions, English classics were read and were reported on monthly by means of written reviews and critiques.

ADDRESSES.

Under the supervision of the English Department, the under-graduate students and the members of the Faculty of Instruction assembled every Friday afternoon to hear addresses from members of the College classes, and to listen to criticisms on these addresses, which were made by the members of the Senior and Post-graduate classes. These weekly exercises were varied by interpolating lectures from the several officers and instructors of the institution, or from distinguished gentlemen invited by the College Faculty. During the college year of 1889-'90, besides the weekly essays read before the classes in the section-room, and the declamations delivered and the compositions read in the afternoon, students presented two hundred and one (201) declamations, addresses, and criticisms from the College rostrum in the presence of the Faculty and students; and one hundred and eighy-seven (187) of a like character were presented during the session of 1890-'91.

A cursory glance at the amount of work done by this department will show that it is over-loaded, and a thorough examination will prove that none of the work can be omitted, if justice is done the student. The question then is: How shall we remedy this? There are two ways, each of which I submit; but the last I strongly recommend.

First; The department may be divided, erecting the subjects of history, political economy, and civil government into a separate professorship, as is done in most other colleges.

The second and cheaper plan is to give this department an additional instructor, who shall be a specialist in elocution, and in addition, shall be competent to do a part of the critical work in the examination and correction of papers, and such part of the teaching of classes as may be assigned him.

There is no instruction more needed by the class of students that attend our College, than instruction in elocution. Living as they do in the rural districts, these students come to us from schools poorly organized and meagerly equipped, and it is only by special cultivation in this line that the brightest of them can acquire facility in presenting what they know. As now organized, the Department of

English can do no more than lend a helping hand; it can not do this work thoroughly.

LIBRARY.

As Librarian of the Agricultural and Mechanical College of Mississippi, I have the following report to make: The Library, with the additions made during the present year, contains three thousand one hundred and ninety-four (3194) volumes, but affords meagre facilities only for scientific research and for literary culture.

The number of bound volumes now belonging to the Library is, as above, three thousand one hundred and ninety-four (3194), one hundred and seventy-seven (177) volumes having been added by purchase, donation and exchange, since my last report. Of the whole number, one thousand four hundred and forty-two (1442) are public documents of the general government; four hundred and eighty-six (486) are public documents received from the different States; five hundred and fifty-one (551) belong to the scientific departments of the College; six hundred and fourteen (614) are in the literary department; the remaining one hundred and one (101) volumes are classed as miscellaneous.

There are of unbound works two thousand five hundred and sixty-one (2561) pamphlets, and two thousand seven hundred and fifty-seven (2757) magazines and other periodicals besides files of the leading journals of the metropolitan press. Many of the State papers also, through the kindness of their editors and proprietors, reach the reading room weekly without cost to the Library.

I especially call your attention to the great lack in this department of the College, and ask you to urge the Legislature to make an appropriation, that we may have a Library worthy of the dignity and reputation of this institution.

There has been spent in the last two years for magazines, papers, etc., two hundred and seventy-nine dollars and eighty cents ($279.80.)

The entire Library should be refurnished, as the chairs and tables are becoming more or less unserviceable by constant use. Many of the books are too much worn to be taken from the shelves, and the class of books most worn are generally those most sought for by students.

The present system of leaving the practical work of the Library to be done by a student Librarian is not satisfactory, and if we ever have money enough to purchase such a Library as the College should have, it will necessitate the employment of a regular Librarian, who can devote his whole time to the very complex business of affording students the proper facilities for studying the subjects assigned in their literary and scientific work.

GENERAL REMARKS.

The new and convenient desks, with which the rooms of English have been furnished, greatly facilitate the work of the department, and are a comfort to both student and instructor. Written work, so essential to exactness, can now be done in the presence of the professor with greater comfort than it can be done in the rooms of the students, and with much more certainty of its originality.

There is the germ of a Department Library in the two lexicons, Stormonth's English and Webster's International, the eleven (11) volumes of excerpts from American literature, and the twelve (12) copies of Labberton's Historical Atlas, purchased for the department; and I hope to see this germ grow into a valuable collection of books of reference for the department class rooms.

Accompanying this report are two inventories, the one marked "A" being the inventory of property belonging to the Department of English; the one marked "B" an inventory of property belonging to the Library. In this last inventory, I have not put any price on the individual volumes of public documents, but have estimated these books at what I consider a very moderate valuation.

Several tables have been taken from the Library by your order and used for other College purposes, and two round tables for which there was little use in the Library have been transferred for the present to the room of English by my order.

The above is respectfully submitted,
W. H. MAGRUDER,
Professor of English.

DEPARTMENT OF MATHEMATICS.

AGRICULTURAL AND MECHANICAL COLLEGE,
November 1st, 1891.

Gen. S. D. Lee, President:

SIR—I have the honor to submit the following biennial report as Professor of Mathematics:

The Freshman Class is instructed in Peck's Manual of Algebra during the entire session. The class is examined at the close of the first term on that part of the book which has been passed over. A final examination is given when the class completes the study in June. A course in book-keeping has been given during the third term, and is taught as practically as possible.

The Sophomore Class is instructed in Wentworth's Plane and Solid Geometry during the first and second terms. Numerous original problems and exercises are required of them to test their knowledge as they progress. The third term is devoted to Wentworth's Trigonometry, with problems and practical applications.

The Junior Class is instructed in Davies Surveying, revised by Van Amrige, during the first term.

For the practical or field work in surveying the class is divided into teams of six to eight students each. The work is so arranged that all students are required to familiarize themselves, in turn, with the duties incident to surveying and plotting fields, calculating areas, section and cross section leveling. Each session in this way, several fields are surveyed with compass and plane table. Levels are run and side-hill ditches are staked out.

In all this work the students handle the instruments themselves, make their own calculations and plots, the instructor merely supervising and directing.

The Junior Class is instructed in Analytical Geometry and Mechanics during the second and third terms. The former course is quite brief, and is given in a course of lectures.

In Mechanics every effort is made to give practical instruction, but lack of equipment (mentioned below) renders this all but impossible. The problems are practical, relating to every day mechanics.

The Senior Class has no mathematics for the first term.

The class is instructed in Civil Engineering during the second term, and one month of the third term. The first two months is devoted to a course of lectures on building materials in the general sense; strength of materials; framing and building; roof and bridge trusses; strains on parts; foundations on land and water; excavations; embankments, etc. But as in mechanics all means of illustration are entirely wanting. The last two months of the time are devoted to Shunck's Field Engineering.

The practical or field work in engineering consists in laying out simple, compound and reversed curves; cross section leveling; setting slope-stakes, etc.

The Senior Class is instructed in Peck's Popular Astronomy during the last two months of the third term.

We have two post graduate students in Mathematics, engaged at present on Puckle's Conic Sections.

The course in mathematics is divided into two parts:

First—Pure Mathematics to include the Freshman and Sophomore years, and

Second—Applied Mathematics to include the Junior and Senior years.

Thoroughness in first part is essential to a correct understanding of the second, and for this reason it is insisted on before a student is advanced.

While the first course is purely preparatory, the second is full of advantage to the student. Here he gathers the results of previous year's study.

Especially is Applied Mathematics of advantage to the students of an institution like this, the genius of which is to give a practical every day education.

The department is badley hampered in its efforts to give such practical instruction, by entire lack of appliances and apparatus as means of illustration, and for application of theory to practice.

With this showing I most respectfully request that some equipment be granted the Mathematical Department, and some books of reference for this department be added to the College Library. This is a pressing need, and one which asks immediate attention, especially since the organization of the Mechanical Department which will be making an increasing demand on the Mathematical Department for thoroughness in instruction and the application of the theory to practical purposes.

I append a list of articles which would add greatly to the teaching facilities of the department.

The method of *object lessons* is now generally adopted to instill first principles, and I respectfully ask the means to follow this method.

I ask the following:

MEANS OF ILLUSTRATING MECHANICS.

Articles.	Catalogue Price.
The parallelogram of forces	20 to 50 Marks.
The bent lever	30 to 45 “
The inclined plane, with graduated arc and arrangement to make the force act parallel to the base	36 to 50 “
The screw	5 “
The endless screw	50 “
The apparatus for illustrating the laws of the wedge	12 to 25 “
Blocks and pulleys on stand	50 to 80 “
Apparatus for explaining laws of the lever	45 to 50 “
Simple windlass	20 “
Differential windlass	20 “
Apparatus for explaining the laws of stable equilibrium	24 to 35 “
Apparatus for explaining the law of equal transmission of pressure	250 “

Apparatus for showing parabolic motion of projectiles	25	Marks.
Centrifugal machine to stand horizontal or vertical	30	"
Flattening the earth	18	"
Bohenberger's apparatus for explaining the revolution of the earth on its axis	27	"
Gyroscope, after Fessel, with counterpoise of 7½ cms	30	"
Crank handle and axle	15	"
Chain pulley with single groove	34	"
Breast wheel constructed of timber	175	"
Overshot wheel constructed of timber	180	"
Low pressure turbine wheel with guide blades	430	"
Independent wharf crane	150	"

MEANS OF ILLUSTRATING CIVIL ENGINEERING.

Portion of house corner with frame work	14	"
A. Frame work of simple beams	27	"
B. Frame work of crossed beams		
C. " " " " with furry		
Single timber connections 1 to 73, Schroder's collection	116	"
Double beam construction	62	"
Simple shed roof, height—length	14	"
Simple shed roof, with collar beams	15	"
Shed roof, height ¼ length	16	"
Roof truss, height ⅛ length	26	"
Vertical roof truss with single collar braces, collar beam	26	"
Various stone facings and joints	5	"
Door and window semi-circular arch	11	"
Elliptical and parabolic arch	14	"
Models of simple King and Queen post truss, framing ditches for draining meadows, securing embankments and dams	53	"
Books of reference on architecture, etc	$50	

The above list is very complete, and possibly beyond the ability of the State at present. I ask, however, that something, if not all asked, be granted. Eighteen hundred or two thousand dollars will fit up the department in this line very well. I again ask for something, as the department is at present in much need.

Property belonging to Mathematical Department: 1 Vernier solar transit; 1 theodolite; 1 plane table; 1 Vernier compass; 20 loaded pins; 1 66 foot steel chain (broken.)

The above instruments have been in constant use in the Department of Agriculture, Horticulture and Mathematics, and are in good condition considering the use made of them.

I have been assisted in my work by 1st Lieut. J. V. White, First Artillery, U. S. A., as Assistant Professor of Mathematics and Mr. J. C. Herbert as Instructor in bookkeeping and algebra. My connection with both of these gentlemen has been most pleasant, and I would commend most highly the high grade of instruction and the thoroughness in their teaching.

Very respectfully submitted,
B. M. WALKER,
Professor of Mathematics.

DEPARTMENT OF CHEMISTRY AND PHYSICS.

AGRICULTURAL COLLEGE MISS.,
Nov. 15th, 1891.

Gen. S. D. Lee, President:

DEAR SIR—Owing to the illness of Professor Hutchinson, the Chemical Department having been placed temporarily in my charge, I have the honor to submit herewith the biennial report of that department for the sessions of 1889-'90, 1890 '91, and up to November 15th of the present session.

Until the present session this department has given instruction to all four of the College classes. The Freshman class received instruction in elementary Physics, the Sophomore class in general and practical Chemistry, the Junior class in agricultural chemistry, and the Senior class in Meteorology and applied Chemistry.

THE FRESHMAN CLASS.

This class received instruction in the theory of the constitution of matter, the philosophy of the Three States of Matter, Dynamics, Heat, Electricity, Magnetism, Sound and Light. The teaching was done by questions on lessons assigned in text book and lectures illustrated by experiments with suitable apparatus.

Owing to the study of Physics being too difficult for this class to thoroughly comprehend, it has been transferred to the Sophomore class, which will, beginning next session, study it the first three months of the session. The text book used by this class was Gage's Elements of Physics, which will also be used by the Sophomore class next session.

SOPHOMORE CLASS.

This class studied general Chemistry the first two terms, and practical Chemistry the last term.

General Chemistry comprises a study of the elements and their compounds and the laws that regulate their combination. Under this head is taught the occurrence, preparation and properties of the non-metals and metals and their compounds, as well as their importance from both a scientific and commercial standpoint.

In practical Chemistry, each student is supplied with a well-arranged working desk, furnished with gas and water and a complete set of apparatus and reagents. The practical work consists of the identification of simple substances, separation of metals into groups, and the qualitative analysis of the more complex salts and minerals. The text books used by this class are Roscoe's Lessons in Elementary Chemistry, and Jones' Junior Course in Chemistry.

JUNIOR CLASS.

This class studied agricultural Chemistry five hours a week during the last term. The formation and properties of the soil, the sources and assimilation of plant food, the object and methods of tillage, the occurrence, manufacture, uses and action of the various fertilizers and manures, are some of the leading subjects embraced in this study. The text book used by this class was Storer's Agriculture.

SENIOR CLASS.

This class studied Meteorology the first six weeks of each session, and Applied Chemistry the remainder of the session.

Meteorology treats of the atmospheric phenomena, such as snow, rain and cloud formation, the laws of storms, auroras, etc.

The extraction of the useful metals from their ores, the manufacture of various articles of food, textile fabrics, glass, earthenware, &c., are some of the subjects treated in Applied Chemistry. After this the class is given a higher course in Chemistry applied to agriculture.

Beginning the present session, this class will give up the study of Chemistry applied to the arts and manufactures, and pursue that applied to agriculture. Loomis' Meteorology, Wagner's Chemical Technology, Johnson's How Crops Feed and How Crops Grow, and both volumes of Storer's Agriculture are the text books used by this class.

APPARATUS, ETC.

The department is well supplied with apparatus for teaching Physics and Practical Chemistry, but is deficient in apparatus for teaching general Chemistry. The new seats lately furnished the department are good and very comfortable, and the department desks, counters, &c., are in very good condition.

I would suggest that the tank which holds the laboratory water supply and the well from whence the supply comes, be enlarged, as they do not hold sufficient water to last through the summer.

Very respectfully,
L. G. PATTERSON,
Act. Prof Chem.

DEPARTMENT OF VETERINARY SCIENCE.

AGRICULTURAL COLLEGE, MISS.,
Nov. 2d, 1891.

Gen. S. D. Lee, President:

My Dear Sir—I have the honor to submit the following report of the department of Veterinary Science:

Heretofore Veterinary Science has been taught by the professor in charge of the department of Biology, but recently a separate department has been established, and I have had charge of it since September 16th, 1891.

Professor Creelman who has had charge of the work in Veterinary Science, during the past two years, will report to you concerning the same; but since a new department has been established, it is proper to briefly outline the course of work, which I expect to pursue, and state the equipment necessary for its accomplishment.

A knowledge of Anatomy and Physiology, is absolutely necessary to a correct understanding of the diseases of the animal body, and their proper treatment.

There is, however, a marked similarity in Human and Veterinary Anatomy and Physiology. Therefore, since my duties require me to teach the former, in addition to Veterinary Science I shall, during the year preceding the one, in which Veterinary Science proper is taught, teach Comparative Anatomy and Physiology; using of course, the human body as the type. This will occupy one hour a day, during one term, and will be done by means of a suitable text-book, supplemented by lectures, and illustrated with dissections, skeletons, manikins, charts, etc., with which the department is partially supplied. Veterinary Science proper, will be taught one hour a day during three terms. The first term will be devoted to especially important Veterinary Anatomy, and the actions and uses of those drugs and preparations used in medical practice. The student will be taught the effects of the different remedies on the animal system, and the proper dose of each. During the last two terms the principles and practice of veterinary medicine and surgery will be taught by means of a course of lectures on those diseases, and injuries most frequently met with in the domesticated animals. The nature, causes, and symptoms of the common diseases will be described, and the proper remedies for their treatment pointed out. The proper surgical treatment of all injuries will also be accurately described. In short, this course of lectures will cover the practice of medicine, surgerv, obstetrics, lameness, veterinary hygiene, etc.

The time is not sufficient for a thorough education in veterinary science; therefore, our aim will be to make the course one of practical value to the perspective stock owner, rather than to turn out fully competent veterinarians. A theoretical knowledge of the science is important, but especial value and importance will be attached to a practical knowledge of the subject. This can only be obtained in actual practice, and therefore to meet that condition a free clinic has been established. For two hours on one day of every week during the whole college year, all sick or diseased stock brought to the college, is treated free of charge to the owner. In this way an abundance of material for practical instruction is obtained, the number of cases ranging from eight to twelve, or more, at each clinic. In this way the students become familiar with the proper handling of stock, and the administration of medicines. They also learn from personal observation the symptoms of each disease, and the effect of medicines on the same. During the latter portion of the year they will be required to perform minor surgical operations and prescribe for cases.

At present we are not equipped for this work. A cheap building or shed is being erected for a hospital, but we have no money for the purchase of operating tables and instruments. For this purpose, at least five hundred dollars are required.

We are also in need of a class room, and a room adjoining in which dissections of the smaller animals may be made for teaching Anatomy and Physiology.

As the department of Biology is also in need of a building for class room, laboratory, and museum purposes, one might be erected for the joint accommodation of the two departments.

Very respectfully submitted,

TAIT BUTLER.

DEPARTMENT OF BIOLOGY AND GEOLOGY.

A. & M. COLLEGE, MISS.,
November 2, 1891.

Gen. S. D. Lee, President:

DEAR SIR—I have the honor of presenting to you, the fourth biennial report of the work done in this department.

As Biology is the science of life, and as the agriculturist is directly interested in anything that pertains to the welfare of either animal or vegetable products, I desire to show you how practical work in this department can be made to go hand in hand with scientific agriculture.

In Botany, for instance, we are taught the nature of a plant's food, the mode of absorption and assimilation of that food, and the character and composition of the tissues or fruit, as the case may be. Agriculture, taking advantage of these facts as discovered by the botanist, applies a certain fertilizer, rich in the proper nutrative substance, cultivates the ground, prunes the useless branches, etc., in order that the proper conditions for healthy absorption may be present, and makes use of those parts of the plant, which biological investigation has shown to be of economic value.

Physiology teaches how foods are digested, and what foods are the most suitable for the formation of any structure. Agriculture applies this knowledge in fattening live stock, and in rendering more abundant and suitable, any particular product.

Biology also furnishes invaluable aid to the farmer by supplying him with the life history, conditions and existence of hundreds of parasites which annually destroy so much of the agricultural produce of our country. A knowledge of the life history of these pests is necessary before we can discuss the best economic means of destroying them. Keeping all these things in view, I have, during the sessions of 1889–'90 and 1890–'91, pursued the following course of study:

SOPHOMORE CLASS.

FIRST TERM—Anatomy and Physiology. Anatomy, which is a description of the location and structure of the various parts of the human body, is studied by means of a text book supplemented by lectures.

The study is greatly facilitated by the use of charts, skeletons, mounted and unmounted, and life size drawings of the different organs.

Physiology, treating of the organs of the body and the functions they perform, is studied in the same way, after which the two are combined, and Hygiene lectures added, pointing out the best means for preserving the health.

THIRD TERM—Botany. Structural Botony is taught with a view to making students more observant of the manifold workings of nature in the vegetable kingdom. One hundred fresh specimens of plants are analyzed and classified, special attention being given to those vegetables and fruits which are the common products of the farm.

JUNIOR CLASS.

FIRST TERM—Geology. In order to make this study more interesting, instructive, and practical, I have carefully prepared a course of lectures which takes the place of a textbook.

All points bearing on agriculture are studied, and the various steps explained in the conversion of solid rock into soil. The formations of rock in Mississippi are taken up separately, and their economic products enumerated and described. The valuable collection of fossils in the College Museum are here used to advantage, and, at the close of the term, the class is familiar with all kinds of rocks and their contents.

SECOND TERM—Veterinary Science. Instruction in this department embraced a three month's course of lectures on the principles and practice of veterinary medicine and surgery. It included the comparative anatomy of the horse and cow; actions, uses, and doses of veterinary medicines; causes, symptoms, and treatment of the most common diseases which effect domestic animals in the South; and a short course on veterinary obstetrics and breeds of horses.

PRACTICAL WORK—Students were taken to the barns and made to handle horses and mules, judge them by points, and compare first-class animals with those of lower grade, noting the main points of difference, the causes for same, and how to remedy the defects. The teeth were studied as age indicators, and a short list of instruments and medicines described, that would be of use on every farm that produces live stock.

All sick animals belonging to the College were treated in the presence of the class, and each student was required to write a synopsis of the case, stating the cause, symptoms and treatment of same; also sick animals brought to me by stock owners in the vicinity of the College, were, when practicable. treated in the presence of the students.

THIRD TERM—Economic Entomology. This science is taught with a short text book supplemented by lectures which contain practical results of experiments with insects and insecticides of the several Experiment Stations of the United States and Canada. Insects are collected, and their habits watched and closely studied with a view to finding an easy and practical way of destroying the same.

SENIOR CLASS.

FIRST TERM—Zoology. Commencing with the lowest orders of animal life, and passing gradually up the scale to man, all the phenomena of life are noted and carefully studied. Specimens are collected by the class from time to time and dissected in the class room, where each student with note book and drawing material, writes a description and makes a drawing of all that comes under his notice. Compound microscopes are used, and besides becoming expert in the use of this instrument, the student soon learns to be more observant, and to investigate along lines where his taste and his talent lead him.

SECOND TERM—Physiological Botany. The Structural Botany of the Sophomore year is briefly reviewed, after which the attention of the students is directed to the internal structure of the plant.

The minute plant cell is taken as a unit, and with the aid of the microscope, we build up root, stem and leaf, until we form a perfect plant. Thus, the successive stages in a plant's life are studied, the students doing the practical work themselves, and as in Zoology, making drawings of all the phenomena observed.

CHANGES IN THE DEPARTMENT.

In the past we have been crowded in this department and therefore have not been as thorough in our work as we desired. The new department of Veterinary Science will relieve us of that study and Anatomy and Physiology. We now feel less encumbered and hope to cover more ground in a specific direction.

CHANGES IN THE COURSE OF STUDY.

It has been my aim during the past three years to introduce the Natural Sciences into the lower College classes, and during the ensuing session, the Freshman will study Botany and the Sophomores, Elementary Geology. We will also deliver a short course of lectures on Botany to the members of the Preparatory Department, during the Spring term. Our object is to get the lower class students interested in those sciences, which they can study in their fields and gardens at home, without costing anything except the time spent in such study.

NEEDS OF THE DEPARTMENT.

Throughout the entire course, the students evince the greatest interest in their work, and had we a Biological Laboratory fitted up with apparatus for work like the Chemical Laboratory, I am satisfied we could graduate students in Biology, competent to occupy positions similar to those now held by our promising young men who received their instruction and conducted their practical studies in the Department of Chemistry. Under the present arrangement, while the practical work is thoroughly studied as far as we go, still the cramped position in which we find ourselves, necessitates only elementary work. We sincerely trust that the present Legislature will recognize the dire necessity for a new Science hall at this College.

Yours faithfully,
G. C. CREELMAN.

DEPARTMENT OF MILITARY SCIENCE.

A. & M. COLLEGE MISS.,
Oct. 24th, 1891.

Gen. S. D. Lee, President:

Sir—I have the honor to make the following report as Professor of Military Science and Tactics, and Commandant of Students for the past two years:

My duties as Professor of Military Science and Tactics, embrace both theoretical and practical instruction.

ORGANIZATION.

For the latter, and for the purpose of discipline, the students are organized into a battalion of four infantry companies, with one Major, and the usual staff and field music. Heretofore, there have been five companies, the fifth being composed of those students rooming outside of the dormitories. But it has been evident for some time that a change was desirable, so at the opening of the present session, the last named company, E. was consolidated with the other four companies, A. B. C. and D. The new arrangement has not been thoroughly tested but I can already see that it is for the better.

THEORETICAL INSTRUCTION.

The theoretical instruction has consisted in recitations by the Junior class in Infantry Tactics, for the first half of the third term, and recitations and lectures, by the same class in Military Science for the remaining half of that term, the course being that prescribed in orders from the War Department. In 1890, there were 19 members in the class, all of whom passed the required examination in Tactics, and 18 in Military Science. In 1891 there were 21 in Tactics, and 20 in Military Science, all passing in both subjects.

PRACTICAL INSTRUCTION.

Infantry Drills have included the Schools of the Soldier, Company, Battalion, and Skirmishes, each company having two drills per week, from the opening of the session to Dec. 1st, and from March 1st, to end of session; from December to March, one drill per week—Fridays—when all the companies are required to be present, were devoted to such drills and ceremonies as were deemed best, progress satisfactory.

TARGET PRACTICE—There was none in 1889-90, on account of having no guns therefore as explained below. In 1890-91, the Senior, Junior and Sophomore classes had practice, with very satisfactory results. Ranges, 100 and 200 yards.

ARTILLERY DRILLS—The Sophomore classes, March to June, had one drill per week, with the 3 inch field piece, including the manual and mechanical maneuvers. Progress, good.

Besides the above, Dress Parades and guard mounting have been had as often as practicable; also, instruction in guard duty.

ARMS AND EQUIPMENTS.

The *Arms* consist of

250 Cadet rifles (Sp'ng'ld) cal. .45, and accoutrements (U. S.)
100 " " " " .50, " " (State.)
40 Large " " .50, (State.)
2 3-in muzzle loading field-pieces (U. S.)

Blank ammunition for both the Cadet rifles, and artillery pieces is furnished, and ball catridges for the former

The 150 Cadet rifles, cal. .50, were turned into the U. S. Ordnance Department in January, 1890, for exchange for the 250 Cadet rifles, cal. 45; but the new ones were not received until about June 1st, following. This delay necessarily interfered materially with the drills, and such other exercises where arms are used. There were no dress parades during that time, and all infantry drills were without guns.

The old guns are in the way, and require constant care. It is hoped some way may be found to get rid of them.

DESCIPLINE.

The descipline has been good during the past two years. I am pleased to state that the officers and non-commissioned officers of the battalion have, as a rule, done their duty well, thereby rendering me great assistance in the performance of my duty.

DORMITORIES.

The dormitories were put in good repair during the past summer. The painting of the woodwork, and the introduction of closets with hooks, have added much to their appearance and convenience.

The obtaining of 100 single iron bedsteads, wire-woven mattreses, &c., was a step in the right direction. When all the rooms are furnished with them, the much desired uniformity and consequent improved appearance will be obtained.

Fire Apparatus—The fire plugs in the dormitories are now provided with 1½ inch hose, sufficient to reach most any part of the building on short notice, and if used promptly, would extinguish a fire therein. But the water supply is deficient both there and elsewhere on the campus. It would be impossible to stop a fire, except in the domitory after it had gained any headway.

As you know, I have applied to be relieved from duty here, and returned to my regiment, and am expecting my orders daily. I regret exceedingly the necessity of the step. My relations with the College having always been of a most pleasant nature. In conclusion, I desire to express my thanks to you for your uniform kindness, and the assistance rendered me in the discharge of my duties.

Very respectfully, your obedient servant,

John V. White,

1st Lt., 1st Art'y; Prof. Mil. S. and T.; Com'dt of Students.

DEPARTMENT OF AGRICULTURE.

Gen. S. D. Lee, President A. & M. College:

Sir—Herewith I present a condensed report of the work performed under my supervison as Professor of Agriculture, and Superintendent of College farm, for the two years beginning November 15th, 1889, and ending Nov. 15th, 1891.

The duties discharged by me are found in the accompanying report, and are divided into the following objects of this department:

First. Personal supervision of student labor in field, work with herd and machinery.

Second. A course of lectures on the practical and scientific facts of the farm to Freshman, Sophomore and Senior classes, and the instruction to resident graduates and special students in agriculture.

Third. General management of the College farm of 1,650 acres.

Fourth. Attending Farmer's Institutes, and other meetings of like nature.

Fifth. Correspondence on many subjects of scientific farming. Many plans and specifications have been submitted by letter for the building of barns and silos. Letters of advice upon the merits of machinery have been given, together with others on grasses, field crops, fertilizers, etc.

I have not been able to accept all invitations to attend farmer's meetings, but have been present when possible and submitted addresses. Much of the correspondence on farm subjects has been printed in the agricultural papers of the State. My time has been too limited to allow as full replies as I would wish to have given. I feel sure that this work has been appreciated by those interested.

INSTRUCTION

Class room instruction to the Senior class has covered yearly the study of cattle foods from a scientific and practical standpoint, including such work as the compounding of feed rations for milk, beef, growth, and work—from analyses of foods. A summary of results from the various Experiment Stations of the Union constitute a series of lectures on fertilizers, cotton, corn, feeds, grain, etc. The various systems of farming for the South are discussed in lectures and rules given for the right management of each.

The Sophomore class has been instructed on the principles of breeding stock for certain purposes, and the fixed laws that govern the character of the animal. Drainage is studied from a practical standpoint, and its uses and necessity shown. Lectures are taken in the field on grasses and their adaptability to various sections of the State. The enriching effects of the clovers, peas, beans, etc., are duly shown and illustrated by example; the simple nature of the plants as food are shown in their relative value for laying on fat or for production of muscle; then the propagation of these grasses is studied with reference to season, cost, preparation of land, and treatment.

The Freshman class study annually the quality, origin and adaptability of all the breeds of cattle, horses, sheep and swine. Advice is given as to management and feed of all live stock for economic use. Many farm implements, tools and machinery, are kept on exhibition, and a course of lectures concerning their qualities and how to use them is given this class.

The herd of 340 head of cattle of several breeds, many growing crops of grass, and varieties of corn and cotton are used as means of illustration. Besides these, a dairy in daily operation manufactures butter by the most improved methods, using machinery and steam power. All of the varied equipment of a farm of 1,500 acres, is open at all times for the inspection of students and visitors, who will be cheerfully received.

COLLEGE FIRES.

The work for the two years has been done under the most restricted financial conditions, caused by the incendiary fires to Farm department buildings on September 22d and October 23d, 1889. The losses sustained at that time aggregated ten thousand dollars, and were severely felt. No assistance was given the department, but money to feed the 350 head of cattle, and funds for the payment of labor was furnished by the sale of dairy products of this department.

Since the last report we have rebuilt the necessary barns and sheds destroyed by fire, with such improvements as were needed. Nearly all the improved implements have been replaced. Enough forage to winter the herd of cattle has been saved, consisting of hay, silage, and corn. Notwithstanding the several months draught just experienced, the milk herd is in better paying condition per head than for several years. The scarcity of feed following the fires had something of a depressing effect upon the herd, which scant food always causes. This has been entirely overcome. The actual yield of the entire herd was tested in the spring of '91, and without pasture showed a yield of two-thirds of a pound of butter per head, for each day. Grade Jerseys, with many heifers compose the herd.

THE DAIRY.

The work of the Farm Department can be clearly traced in the growth of the dairy interest in this section of the State. The number of farmers in this vicinity, and in the various sections of the State, who have been induced to practice a diversified dairy business, is much larger than is commonly known. Failure has met some who have tried this work, but only because they proceeded too far for their knowledge of the business to support them. The farmers of this section who have the most ready money are found among the dairymen. A regular income of fifty or ninety dollars per month is often realized. In some cases the amount received is known to be 100 per cent. on the investment each year. When the value of product is considered and to this is added the gain in fertility to cultivated soil, the dairyman's prosperity is not a secret.

During the past two years the following average price for butter has been paid per month to patrons of the creamery owned and operated by the College, to-wit: 22 17-100 cents per pound net.

Students are given work in the dairy which fits them for dairymen when they leave the institution. Many students have thus been able to accept responsible positions on dairy farms in this and other States. Inquiries for such students are constantly received. Not all such can be filled because not many students can afford to drop their studies for the work.

The Babcock system of milk testing now used in the dairy is very reliable, and gives satisfaction.

Ice is used to give proper temperature to cream in churning, as the duct beneath the cellar gives no aid in lowering the temperature of cellar. During the winter season this duct fills with water and must be pumped out at some expense.

THE MILK HERD.

Under the present system of feeding and milking the herd of cattle, everything works smoothly, and the students perform most efficient service. Quiet and cleanliness are preserved in milking—all of which adds to the value of the product. A Heuling's ærator is used to pass the milk over to rob it of animal heat and gases, which renders it pure for drinking purposes, and adds to its keeping qualities.

Your attention has been already called to the disease of eye and throat affecting cows and calves for the past two years. Dr. Butler, of the College, is now treating this disease with much promise of success. Many calves have died from this trouble when all precautions have been taken to prevent its spreading. No cows have died, but at times animals were totally blind for two or more weeks. The disease has been quite general in this immediate section, although little loss has been sustained with grown cattle. One case in thirty loses the sight of one eye.

PURE BRED STOCK.

The Farm Department has practiced the breeding of pure stock for sale for several years. The Herefords and Galloways had been disposed of before the fall of '89, when the Holstein herd, of some 40 head, was sold. The Devon herd was retained and bred for sale. We cannot fill all the orders received for this breed.

In October '90, a herd of Berkshire hogs was purchased to breed for sale. Though high prices were paid the merit of the several shipments already made to points in this and adjoining States justifies the expenditure.

The ultimate object of this department in this and other operations is to disseminate the best quality of farm stock among the people of the State, and so quicken and stimulate the live stock industry.

FARM LANDS.

By action of the Board of Trustees in June, '89, I was directed to raise crops of corn, cotton, oats and grasses of known merit for the purpose of disposing of the seeds of these several crops throughout the State. Below will be found the number of bushels of each crop sold. The amount in each case is necessarily small on account of the close selection to type of each variety:

Corn, 137	bushels.
Oats, 18½	"
Cotton seed, 36	bushels.
Clover, 27	"

VALUABLE FACTS.

In the prosecution of the several lines of farm work already mentioned, conclusions of some value have been reached, which cannot be known except by a large field test often repeated. Some such conclusions are found below as a part of the result of the two year's work.

1. The cheapest combination of foods we have feed to milk herd has been found in 4 lbs. of cooked cotton seed, 5 lbs. red clover hay and 20 lbs. of matured corn silage. Estimating cotton seed to cost 10 cents per bushel, home raised hay $5.00 per ton and corn ensilage $2.00 per ton, the day's ration for each cow is less than four cents. Both hay and ensilage have cost less than the estimated price.

2. Bermuda grass is the most reliable for summer grazing of all the grasses of this section. Lespedeza clover is better for milk cows when the stand is assured.

3. The choice between burr clover, rye, barley and oats for winter pasture, depends on the character of the soil.

4. Red clover is especially valuable on lime soils on which a growth of grass appears after the second cutting of clover. Three and some times four cuttings per acre are thus afforded.

5. The growth of melilotus on lime soils for hay and grazing is very luxuriant. This is better adapted to the poor soils of this section than is red clover. The fertilizing effects of this clover are clearly noticeable on the crops following.

6. The very heavy growth of chicken corn (sorghum vulgare) on land planted in corn, has been profitably cut and fed in the early fall. This growth follows the last cultivation given the corn, and does not materially affect the yield of the field. As many as four tons per acre are mowed from land on which the corn has been gathered.

7. The Johnson grass which has infested the cultivated parts of the farm has been given such a check in one of the fields as to effectually suppress it. This has been done by repeated plowings with sweep in middles during dry cultivating seasons. The hoe is used to prevent seed from maturing in the drills. Bottom land well set in Johnson grass has thus been forced to make a good crop of corn. The instance mentioned was located in "North" field, and was visited by many farmers. In the case of cotton the land was cultivated in "checks" and the grass gave less trouble here than in corn.

The area of land thus to be cleared of grass is limited only by the amount that can be thoroughly plowed and hoed while the land is dry and friable.

8. Johnson grass hay alone supported a herd of forty head of store cattle for thirty days in good condition.

9. Early planted corn (Mch.) has required two more cultivations and two more hoeings than late planted corn (May.) Early planted corn has given 10 or 15 bushels larger yield per acre than the late corn.

10. A full crop of cotton to each stalk has been assured in seasons of drought by frequent cultivation with small toothed plows, which has prevented the shedding of leaves and forms.

11. The cheapest system of restoring fertility to worn soil is to construct hill-side ditches, when required, and induce the growth of some grass—Lespedeza preferred, and use for pasture. Continue for two years. Break land in fall and seed to rye and graze during the dry days of winter and during spring. Sow cow peas in late spring and manure well. Seventy-five acres of very poor, washed, hill land have been recovered at little expense.

STUDENT LABOR.

The variety of crops raised on the diversified soils of the farm, the machinery used and cattle handled afford opportunity to students to learn many of the facts of diversified farming. The student labor system of the department is based upon the apprentice idea of education, and couples with this, three important features, viz:

The exemplification of scientific lectures given in class-room upon the crops so worked; keeping the student in touch and sympathy with the laboring classes, in whose interest the institution is conducted; to assist in the support of those students who are in need of education and lack money to take the average college course with attendant expenses. Many boys could not remain here were it not for student labor. Each student is paid at the rate of 8 cents per hour for faithful work. Naturally, poor students work more than others, though all are required to work at regular times.

Those students who have worked the most while here (poor students) have stood highest in their classes, and as citizens—thus showing that *poor* boys, here, have the best opportunities, and that the student labor system is an educational feature of great value to the State.

RECOMMENDATIONS.

Wherever these students go they carry with them new ideas and quicken the spirits of thought and discussion on farm questions in every community.

I would call your attention to the fact that work in the Mechanical Department necessarily subtracts from the time before allowed for field work. This will reduce the amount of money earned per student for each year. Last year the time given to labor was smaller than before, on account of restricted funds for payment. Very little compulsory labor has been employed this fall for lack of money. In consideration of its many advantages, I recommend that the student labor fund be increased, if possible, from $4,900 per annum to $7,000.

The work in class room is much restricted because no suitable room can now be had for the instruction of students in Agriculture. Cases for the preservation of specimen grasses and field crops are an essential. A room adjoining the class room is needed for exhibiting live stock, implements and machinery. This room should be entered from the surface of the ground, and connect with the lecture room.

The great educational work, in many lines, done here for the farmers, should be imparted to them in other ways than those now used. Heavy correspondence is now required and then but a small per cent. of the people are reached who desire the information—while those who most need it do not inquire for it nor know of its existence.

I would urge, therefore, that a system of "Farmer's Institutes" be held under College supervision for the discussion of farm facts, so that at least one meeting may be held in each county during the year. Personal contact with College workers will inspire a confidence in scientific and diversified farming, such as can be had in no other way. This system of discussion has received the approval of the farmers in many of our States, South and North. There is nothing so essential to the prosperity of the farm as are the Institutes for the State. Much of our College work must fall short of its object without them.

My relations with employees and the members of the Faculty, have been most pleasant to me. I am under many obligations to you for assistance and advice in the management of the department, and for courteous treatment on all occasions.

I am, most respectfully yours,
J. H. CONNELL,
Prof. of Agriculture and Supt. of College Farm.

STATEMENT OF ACREAGE, 1890.

100 acres corn, producing 2,250 bushels.
30 acres silage, producing 225 tons.
40 acres oats, used for hay.
34 acres cotton, producing 7½ bales.
30 acres red clover, producing 90 tons.
50 acres melilotus (grazed.)
40 acres rye (grazed.)
10 acres improved grass and clover (pastured.)

STATEMENT OF ACREAGE, 1891.

85 acres corn, producing 2,000 bushels.
30 acres ensilage, producing 250 tons.
20 acres oats, producing 200 bushels.
22 acres cotton, producing 9 bales.
15 acres cow peas, producing 100 bushels.
15 acres rye (grazed.)
4 acres vetch (grazed.)
15 acres improved grasses and clovers (grazed.)
20 acres melilotus, producing 40 tons.
45 acres red clover, producing 140 tons.
25 acres lespedeza, producing 30 tons.

LABOR STATEMENT FROM NOV. 15, 1889, TO NOV. 15, 1890.

	Students.	Men.	Mules.
	Days.	*Days.*	*Days.*
Buildings	37.7	14.	17.5
College	9.6	61.5	69.
Cotton	245.1	113.7	71.
Corn	1,558.2	334.5	320.5
Dairy	179.4		
Ensilage		226.	189.5
Experiment Department	38.6	161.5	154.0
Fence	278.1	79 5	69.
Hay	355.6	320.8	285.2
Improved Grasses	6.6	72.	173.
Manure	21.9	101.5	163.5
Oats		56.5	99.5
Office	78.		
Permanent improvement	159.	24.	24.5
Rye		36.5	69.
Roads	21.1	6.	11.
Stock	452 6	87.5	46.
Tools	17.5	15.	4.
Wood	27.7	56	173.

LABOR STATEMENT FROM NOV. 15, 1890, TO NOV. 15, 1891.

	Students.	Men.	Mules.
	Days.	*Days.*	*Days.*
Buildings	14.4	45.6	45
College		7.	13.5
Cotton	52.1	199.4	199.
Corn	208.8	371.7	447.
Dairy	80.6		
Ensilage		155.	174.5
Fence	155.9	27.5	32.5
Hay	109.7	181.3	205.2
Improved Grasses	58	109.7	143.4
Oats		51.7	41.
Office	67.2		
Permanent improvement	199.	75	108.5
Rye	3.4	18.5	31.
Roads	21,1	6.	11.
Stock	334.6	87.5	43 2
Tools		10.5	2.5
Wood		21.5	44.5

DEPARTMENT OF HORTICULTURE.

AGRICULTURAL COLLEGE, MISSISSIPPI,
November 25, 1891.

Gen. S. D. Lee, President:

DEAR SIR—The following report of the Horticultural Department is respectfully submitted:

INSTRUCTION.

Class room instruction by text books, and by lectures is supplemented by object lessons and by practical work in the garden and orchard.

PREPARATORY CLASS—FIRST HALF OF SECOND TERM.

Soils, drainage, manures; the details of selecting, planting and cultivating the home or kitchen garden and orchard.

FRESHMAN CLASS—FIRST TERM.

During this term the nursery business and truck farming are discussed from a commercial standpoint. Among the topics treated are: the construction and management of cold frames, hot beds, and green houses; the propagation of trees, plants, and vines from seeds, layers, cuttings, grafts. etc; the cultivation of extended areas in fruits and vegetables, and the best methods of gathering, packing, and shipping to distant markets.

JUNIOR CLASS—LAST HALF OF FIRST TERM.

Crossing and Hybridizing, Pomology, Forestry, Floriculture, and Landscape gardening.

MEANS OF ILLUSTRATION.

Propagating Structures, packing house, and improved implements, operating in season; in addition to garden and orchard crops, a variety of trees, shrubs, and flowers on the campus and grounds; books and periodicals in the Library.

Prof. B. W. Saffold was in charge of the department from May 1st, 1889, to July 1st, 1890.

On resuming my duties as Professor of Horticulture, July 1st, 1890, I found the crops all suffering for work. There were scarcely any implements for carrying on work, no food for team, and few salable fruits and vegetables. The necessary outlay for seeds, food, implements, etc., and the work of putting the growing crops, the roads, and campus in order, required all the cash credits of the department.

It was now too late to do much planting, but the fall garden gave us a good supply of vegetables for students and the Faculty. From four (4) acres late corn were harvested one hundred and forty bushels (140) bushels; from the grounds were cut twenty (20) tons of choice hay.

During Christmas holidays the hay barn and packing house, with its contents, was burned. Approximate loss:

Building	$150 00
Twelve tons choice hay	144 00
Hot bed sashes	120 00
Fruit and vegetable boxes	125 00
Total	$539 00

Complying with a long standing promise to equip the department from the first available means, the Board of Trustees, early this year (1891), from the first U. S. appropriation (Agricultural Aid Fund), to this institution, set aside three thousand dollars ($3,000) for said equipment. From the second appropriation eight hundred dollars ($800) were added to above amount, to be expended in the erection of a building with appropriate apartments for tools, work shop, seeds, root crops, canned, pickled, and dried goods, packing hall, and gardener's room.

Orders went forward as soon as money was available, and the work of building, planting, etc., began promptly when materials were in hand.

The green house and other propagating structures, completed too late for early seeding, were planted at earliest time possible. After supplying the College garden with plants, the surplus was all sold, and we have on file several large orders which, on account of late start, we could not fill.

Nearly two and a half (2½) miles of tile drain were laid in the Horticultural grounds by an expert tile layer. The entire work was begun and ended in a most satisfactory manner; and, already, the beneficial effects on both soil and crops are manifest. The buildings are all modeled after the most approved plans, and only the best materials were used in their construction.

Several hundred fruit trees have been added to the orchard; the area in small fruits and in vegetables is nearly doubled. The late spring freeze killed the peach and pear crops, which promised this season to be very heavy. The same cold spell cut the vegetable and strawberry crops short, but the supply of vegetables later was good. From seven (7) acres (more than half on poor soil) in strawberries, were realized this season something over five hundred dollars ($500.00), after paying shipping expenses and commissions. From eight (8) acres, four hundred (400) bushels of corn and two thousand (2,000) bundles of fodder were harvested. From the corn fields, orchards, and lands not suitable for garden, seventy-five (75) bushels of choice peas were gathered.

The three month's drouth through which we have just passed, has been very trying on all small fruits, but especially on strawberries. The stand is very much injured, and there are but a few surplus plants with which to fill missing places.

Garden seeds planted one, two, and three months ago, are still sound in the ground, and waiting for sufficient moisture to sprout them.

During the summer vacation I purchased a small canning outfit, and, with the assistance of three students, put up sufficient canned tomatoes, catsups, cucumber and other pickles, to last the students during the session. By way of experiment, we put up some jam, kraute, jellies, and other goods. At this date these goods are all keeping nicely.

We have endeavored to expend this very liberal appropriation judiciously, and, although our equipment is not yet complete, we are now able to conduct horticultural work on a business basis. From this time forward, I see no reason why the department should not be self-sustaining. Viewed from a financial standpoint, however, these facts are deserving of due consideration:

The College is not located on a horticultural soil. It is not near to a good local market, and is not on the main line of railroad, where perishable goods may be loaded at once into suitable cars and carried at reduced freight rates. Situated as we are, all goods must submit to rehandling when they reach the main line. This often injures tender, perishable goods more than does the whole ride to distant markets. Our connection with refrigerator fruit trains has been such that we have been forced to ship mainly by express, in unsuitable cars, and to pay steep express charges. With these and other disadvantages, we cannot compete with growers along the main lines of railroad; and must often drop out of the markets some time before they cease to realize fair net profits on shipments.

When we remember that market gardening is growing to be an important industry in this State, and that those who must earn their living thereby, will soon be numbered by thousands, we can but be impressed with this fact, that the most important work of this College in the line of horticulture, as in other branches taught here, is to send out trained and skilled men. Looking to this end, I deem this to be the true policy: To cultivate just so much as our facilities will allow us to handle properly, and no more; to work with the view, first, of making our operations educational, and then, to endeavor to realize as much money as we may. If we attempt too much, it will be to our hurt.

I am glad to report that the students with me, both in class room and in field, have manifested more interest in horticultural work this session than ever before. This, I think, is due largely to the fact that they are beginning to see demonstrated on the grounds what they hear in the lecture room. They take more kindly to the work of planting, pruning, training, gathering, packing and shipping, than to the drudgery of the farm.

Thanking you, Mr. President, for the interest you have taken in me and my work, and for the many courtesies you have from time to time, shown me. I am,

Very respectfully,
A. B. McKay,
Professor of Horticulture.

EXPERIMENT STATION.

Agricultural College, Mississippi,
November 25, 1891.

Gen. S. D. Lee, President:

Sir:—I have the honor to present the following report in regard to the Agricultural Experiment Station:

The Experiment Station was organized in March, 1887, under the provisions of the Hatch bill, and is a department of the College. It has erected a building covering four thousand square feet of floor space for office, library, entomological and botanical laboratories, photograph room, etc., two dwelling houses for employees, besides a small greenhouse, a barn and the necessary sheds and out-buildings. It has a library consisting of about one thousand volumes, an herbarium, an entomological collection, an excellent microscope and a fair equipment of apparatus for general work. The chemical laboratory is used jointly by the College and the Station. For its field-work a portion of the College farm has been assigned to the Station, and has been fenced, and about three miles of tile drain laid. The working force of the Station consists of five men who are engaged wholly in Station work and are paid from the Station funds, together with seven members of the College Faculty, each of whom gives only a portion of his time to the Station, and from which he receives a portion of his salary. Three branch Stations have been established in different sections of the State, in addition to provision for special work in the cultivation of forage plants, which is carried on in co-operation with the U. S. Department of Agriculture. Sixteen bulletins and three annual reports have been published, and the regular mailing list includes the names of nearly five thousand farmers residing in this State.

The principal lines of experimentation have been with commercial fertilizers for cotton and corn, varieties of cotton, the cultivation of wheat, flax and grasses, the feeding of different kinds of hay for both milch and work stock, and in fruit culture. The work with fertilizers shows very plainly that, for the yellow clay loam region, embracing the northwestern portion of the State, potash is more essential than is any other one element; that for the pine woods region phosphoric acid should be added; and that in very few localities does an application of nitrogen give profitable results. With the rapid increase in the use of commercial fertilizers, these facts will have a marked influence over their manufacture, and must result in a great saving to the consumers. It is too soon to speak definitely of the results with wheat and flax, but the wheat crop of the present season yielded twenty-seven bushels per acre of grain which graded as "No. 2, red winter." The flax was grown from Calcutta seed, and the Secretary of the National Linseed Oil Company pronounces the crop "a better sample of seed than can be produced, or has been produced, in any other part of the United States." Should future crops prove as successful as were those of the present season, two new and important industries will be opened to the planters in the Southern States. In feeding work it has been shown that Southern grown hay is fully equal to that shipped here from the North, and is much more economical.

An itemized inventory of Station property is presented herewith, showing aggregate values to be:

Buildings	$ 4,200 00
Tile Drain, Fencing, etc	950 00
General Equipment	9,467 52
Produce on hand	400 00
Total	$ 15,017 52

Details of the work are given in the quarterly bulletins, and in the annual report published in February of each year, copies of which are sent to all newspapers in the State, and to all farmers who apply for them.

Respectfully submitted,
S. M. TRACY, Director.

DEPARTMENT OF MECHANIC ARTS.

Agricultural and Mechanical College,
Agricultural College, November 17, 1891.

Gen. S. D. Lee, President:

Dear Sir:—The following report of the present condition of the Mechanical Department is respectfully submitted:

This department is equipped for the giving of instruction in drawing and carpenter work. Two hundred and fifteen students receive daily instruction in drawing and two hundred and fifty go to the shop each week. This gives each student an hour in the drawing-room each day and the students in the shop four hours each week. Work in this department is compulsory upon the students of the Preparatory and Freshman classes. With very few exceptions great interest is being manifested and the new department bids fair to be a success. The interest is not confined to the classes mentioned, because there are twenty students of the upper classes receiving daily instruction. These twenty compose a class and they recently applied for the privileges of the shop and are receiving the same instruction as the other students.

The carpenter shop has accommodations for forty students at one time. Its equipment consists of twenty double wood-working benches, forty sets of carpenter tools, forty vises, two 30″ grindstones, one Universal rip and cross-cut saw, twenty-one turning lathes and twenty-one sets of tools for same. A large washstand, containing basins and water, permits the students to leave the shop in a clean manner. The motive power is furnished by a 12″x20″ slide valve engine supplied with steam by a fifty-horse power return tubular boiler, manufactured by W. T. Adams Machine Company, Corinth, Miss. Water for boiler and washing purposes is obtained from a pond five hundred feet distant and is delivered into a five thousand gallon tank by a Blake steam pump.

Classes after spending one-hour in the drawing-room go to the shop. This arrangement gives general satisfaction, as a student's ideas are clearer and his hands steadier than if he goes from the shop to the drawing-room. In the draughting-room students are taught the necessity of drawing, the use of the pencil in free hand and of the instruments in mechanical work. After a reasonable time they learn to make a working drawing, and to construct a model in the shop, using the drawing as a guide.

The time spent in the shop at one lesson is two hours and instruction is first given on the blackboard and the exercise constructed before the students. Each student is supplied with a blue print sketch of the exercise, using it as a guide.

The course in carpentry covers four months. The cross-cut and the rip saws are the first tools used; their teeth and cutting edges explained. The uses of the jack and smoothing planes, chisel and gouge taught in the order named. In this way the student acquires the skill to make the simplest joint to that of the most intricate dovetails and inlaying. Wood turning follows carpentry and extends over a period of five months. In this the student learns the speeding of the lathe for the different diameters of various exercises, the hardness of woods and what woods should be used for various purposes. The boring, turning and polishing of woods are carefully explained.

When the foundry, forge and machine shops are completed the course in the shops will be as follows: 1st. Woodwork-carpentry, turning and pattern making. 2d. Foundry work—mixing sand, moulding and casting in iron and brass. 3d. Forge work—smithing in lead, iron and steel. 4th. Machine work—chipping, filing, use of the lathe, planer, drill-press and milling machine.

To make this course a successful one the shops should be added as soon as possible. Work should be started on them at once, so there will be no delay at the opening of the session of 1892 and 1893.

A building fifty by one hundred feet will be needed for the forge shop and foundry. The best situation for it is north of the present shop and parallel to it. By making this building a two-story one, and removing roof of present carpenter shop, adding a story and building across, the combination will do for all, including draughting-room.

The estimates for the shops and of the expenses are as follows:

New Building		$ 4,000 00
Altering Carpenter Shop		1,000 00

FORGE SHOP.

20 Forges complete	$600 00	
20 Anvils and Suitable Tools	300 00	
1 Blower	50 00	
Piping-Blast and Exhaust	200 00	
		$ 1,150 00

FOUNDRY.

Cupalo	$500 00	
20 Moulding Benches and Tools	140 00	
Brass Furnace	25 00	
Core Oven	25 00	
Extra Tools	50 00	
		$ 740 00

MACHINE SHOP.

2–10″ Hendy Hand Lathes	$ 120 00	
10–14″ Engine Lathes	3,500 00	
1–25″ Drill Press	400 00	
1–10″ Drill Press	75 00	
1–15″ Shaping Machine	400 00	
Emery-wheel and Frame	50 00	
Grinding Stone	50 00	
12 Vises	120 00	
5–14″ Lathe Chucks	150 00	
2–4″ Lathe Chucks	20 00	
Drills, Taps and Files	150 00	
Pulleys, Shafting and Belting	500 00	
		$ 5,535 00

CURRENT EXPENSES.

Materials for Class Work (2 years)	$600 00	
Engineer's Wages, (2 years)	600 00	
Coal, Waste and Oil	600 00	
		$ 1,800 00
Total		$14,225 00

This equipment is suitable for a class of twenty students at once. I have made close estimates on the necessary tools and material, and in order not to be hampered, nothing less than $15,000 should be allowed the department. Experts have pronounced our present shop to be one of the finest in the South and amount mentioned should be allowed, so as to fit the other shops out in a suitable manner.

The expenditures in this department since my entering upon the duties as Superintendent, are as follows:

Engine and Boiler	$900 00	
Moving and Erecting	50 00	
Excavating	6 60	
Fittings	46 50	
Bricks	159 15	
Lime, Cement and Sand	35 00	
Mason's work	70 60	
		$1,267 85

Pump	$120 25	
Piping	80 00	
Freight	3 00	
Fittings and Excavations	28 25	
		$ 231 50
Tank		112 00
20 Work Benches and 7 Lathe Stands	$207 35	
Hardware and Carpenter work	140 85	
		$ 348 20
Tools:		
40 Sets Carpenter, 21 Sets Wood Turning,	$401 20	
40 Vises	320 00	
21 Turning Lathes	504 00	
		$1,225 20
2 Grindstones		57 25
1 Universal Rip and Cross-Cut Saw		232 25
Shafting, Pulleys and Belting		300 00
Machinery, Erection and Fitting		212 00

CURRENT EXPENSES:

Cotton Waste	$ 8 25	
Coal	146 00	
Material for Class Work	50 00	
Oil	20 00	
Engineer's Wages	300 00	
		$ 524 25
Expenditures of department		$4,510 50

In conclusion, I wish to say that great credit is due Messrs. Browning and Herget, for the skillful manner in which the department has been fitted out. Mr. Browning is a graduate of Purdue University, Lafayette, Ind., and Mr. Herget is a graduate of Washington University, St. Louis, and both are excellent instructors in shop work and drawing.

Respectfully,

HARRY GWINNER,

Superintendent.

PREPARATORY DEPARTMENT.

Agricultural College, Miss.,
November 15, 1891.

Gen. S. D. Lee, President:

Sir—In obedience to law, I have the honor to submit the following report of the Preparatory Department for the sessions of 1889-'90 and 1890-'91.

During these sessions, the design of the department has been unaltered, and no material change in its organization, course of study, or methods of instruction has been made; hence, on these points this report must necessarily be very similar to the preceding, and, consequently, quite familiar to you. But, for the benefit of those to whom these as well as other points herein contained may still be new and interesting, I take pleasure in submitting this, my fourth biennial report.

GENERAL STATEMENT.

This department is designed to furnish a thorough elementary education to young men, particularly sons of farmers, who are deprived of the advantages of a good high school near their homes. Also, to prepare for the Freshman class, such as desire to take the College course.

The number of students admitted into the department is determined each year by the number that can be accommodated in the dormitory in excess of those in the regular College classes.

For convenience and thoroughness in teaching, the students in this department are divided into four or five sections, or classes, according to their scholarship as shown by the monthly reports, being promoted to higher or reduced to lower sections as improvement or retrogression in scholarship during the session may require.

COURSE OF STUDY AND METHODS OF INSTRUCTION.

The course of study requires only one year for its completion. Those who fail to complete it in that time, will not be promoted to the Freshman class, but may, if they choose, review the course next session.

The subjects taught are the following: English Grammar and Composition, Penmanship, Declamation, Arithmetic, Book-keeping, Algebra to Equations of the First Degree, Geography, United States History, and Agriculture.

Instruction in all branches is made as thorough and as practical as possible. To cause pupils to think for themselves and express their thoughts correctly and easily, thus increasing their knowledge and developing their power to acquire knowledge both within and without the text-book is the chief end of all our instruction. By numerous and varied exercises, we also endeavor to make them skillful in the application of the knowledge which they gain of different subjects.

English, in which most of the applicants are quite deficient, is taught practically rather than theoretically. Composition work of various kinds is frequently required; such as, exercises in punctuation and the use of capitals, the reproduction of narratives and descriptions read aloud by the teacher, the writing of letters of different nature, essays on familiar subjects, and occasional debates upon topics suggested by the lessons. By an arrangement of the daily program, one hour or more of one afternoon in each week is devoted exclusively to such work as this, and to instruction and practice in the delivery of declamations.

Arithmetic, oral and written together, is taught inductively; developing first the principle involved, and from that proceeding to the definition or rule—"through processes to rules" being the order of instruction. Here we aim at close reasoning, correct expression, and accuracy and rapidity in execution. It is almost needless to add that especial attention is paid to the business portions of Arithmetic as a preparation for the study of book-keeping in the Freshman class, and as a further preparation students are made familiar with the ordinary language employed in writing notes, receipts, drafts, bills of sale, and other business forms.

The agricultural and other industrial features of Geography are prominently set forth; that is, the students are taught not only where a state or country is, its size, population, capital, and chief cities; but also, what is of equal, if not greater importance, its natural features, soil, climate, productions, the industries of its people, and their progress in civilization. The natural advantages, resources, and industries of Mississippi are made the objects of special study. The great events, distinguished names, stirring questions, and remarkable inventions recorded in United States History are carefully investigated. The various functions of the general and the state government are analyzed and compared. The result of such study, it is believed, can hardly be other than the development of an intelligent, patriotic spirit, and proper preparation for the active and responsible duties of citizenship.

During the first half of the fall term instruction in Agriculture is given by means of an elementary text-book, supplemented by occasional lectures on the subject by the Professors of Agriculture and Chemistry. Throughout the greater part of the second term, two lectures a week on practical agriculture and the selection, care, and common diseases of stock are delivered before the classes by some professor or instructor specially qualified for that duty.

A short course in Botany, without a text-book, was also given during the third term of last year, which proved quite interesting and beneficial to the students. Book-keeping is taught through single entry only, the study being completed in the Freshman year.

ATTENDANCE.

During session of 1889-'90, the total enrollment was 140; average monthly enrollment 94. In 1890-'91, the total enrollment was 116; average monthly enrollment 79. In addition to these, a dozen or more irregular students of the College classes each year received instruction from us in Arithmetic.

Your attention has before been called to the advanced age of the students who enter this department: hence, the peculiar position which it holds in the educational system of the State; reaching, as it does, a class of young men who would probably otherwise be deprived of the advantages of a good elementary education. But as a clearer and more exact demonstration of the foregoing statements, I submit a few figures collected in a careful inspection of the rolls for the last two sessions: Of the students enrolled in 1889-'90, 53 were over 18 years of age; 15 over 20. Of those enrolled in 1890 '91, 50 were over 18, and 17 of them over 20.

Few young men thus advanced in years, or over 16 or 17 years of age, as nearly all the remainder of our Preparatory students are, will endure the mortification of attending a town or country school and being classed in Arithmetic, Grammar, and Geography, with children hardly in their teens. Here, however, they can and do gladly assemble, and, together, without the mortification incurred at the home school, overcome to a great extent by the disadvantages under which, without such an opportunity, they would be forced to enter upon life's duties.

SCHOLARSHIP.

Many of the applicants for admission have been in school very irregularly, or out of it entirely, for several years. Naturally, such students find it at first exceedingly difficult to apply themselves to close and constant mental effort. A few give it up after a short struggle and leave; but most of them exhibit a perseverance that is admirable, and in a few months become good students, remaining the greater part or even the whole of the session.

Of the number present at the final examination in 1889-'90, 55 were promoted to the Freshman class. In 1890-'91, 41 were thus promoted. Quite a large per cent. of these promotions generally return the following session, and constitute the nucleus of a new Freshman class; and it is gratifying to note that many of them hold high rank in their respective classes.

ASSISTANTS.

As in former years, here has been one of our chief difficulties. Not that competent assistants could not be secured, but that they could not be retained more than a year or two at the low salaries which, owing to the lack of funds, the College has been forced to offer them. Three of the instructors who assisted us during the session of 1889-'90, resigned during or at the close of that session; namely, G. W. Covington, W. A. Fort, and J. T. Manier. Mr. J. C. Herbert is the only assistant I now have who has been with me two whole sessions.

Messrs. J. C. Herbert, A. M. Maxwell, and J. J. Gill, regular assistants during 1890-'91, are engaged for 1891-'92, and Mr. J. S. Wallace has also been employed. Owing to an increase in the salaries of these gentlemen, made at the last meeting of the Board of Trustees, I am hopeful that their services can be retained; for they are all faithful and efficient teachers.

To their cheerful and untiring aid much of our success is due; and I take pleasure in making this public acknowledgment of their valuable services. I feel constrained to say, moreover, that I think that the salaries of two of these assistants should be increased to at least $600 at the beginning of next session.

NEEDS OF THE DEPARTMENT.

Your attention is again respectfully called to the urgent need of a better equipment for the writing room; and to the great advantage which it would be to have the classes in Writing and Book-keeping taught in a room on the third floor of the academic building, where our other classes are taught, instead of, as they now are, in the undesirable room in the basement of the dormitory.

Two of the class rooms in this department, you remember, were not supplied with furniture like that recently bought for other rooms in the College. These rooms certainly should be similarly furnished; as I have no doubt they will be, as soon as the means are at hand.

An increased supply of books suited to the attainments and requirements of Preparatory students is much needed in the College Library; for the number of books in it of this kind is extremely limited.

PROSPECT FOR 1891-'92.

With a full and more experienced corps of instructors than heretofore, and with a considerable addition to our supply of furniture and apparatus for illustration, and over one hundred students already enrolled, the prospect for 1891-'92, seems brighter than that of any former session.

Horticulture has been added to the course of study as a daily study during half of the second term; and the organization of the Mechanical Department this session, adds Drawing, Shopwork Principles and Methods to the course. If the earnest, studious spirit now manifest in the students continues, they will accomplish more in this than in any previous session; for never before was their time so fully occupied.

With assurances of high appreciation, Mr. President, of the great interest you have always taken in our work and the valuable assistance you have frequently rendered us, also, of the obligations I am under to others for lectures delivered and aid afforded in various ways, and with grateful acknowledgment of my indebtedness both to you and to them, this report is

Respectfully submitted,
DABNEY LIPSCOMB,
Prof. in Charge Prep. Dep't.

MENTAL AND MORAL SCIENCE.

In addition to my duties as Professor in charge of the Preparatory Department, instruction of the Senior Class in Moral Science, has, for four or five years past, been part of my regular work.

This class during the session of 1889-'90, numbered 15; all of whom completed the subject, after a re-examination of two of them. In 1890-'91, there were 14 engaged in the study, and only one required a re-examination in order to pass.

During the past two years, I have endeavored to combine Mental and Moral Science in one study; some knowledge of the former being essential to a proper understanding of the latter. This was done in 1889-'90, by several introductory lectures on Mental Science, giving a general outline of that subject and its intimate relation to Moral Science. In 1890-'91, a text-book was adopted combining the elements of these two sciences more clearly and satisfactorily than I could accomplish it by means of lectures and a separate treatise on Moral Science only. With this text-book, increased interest was awakened and more satisfactory results obtained.

The students have always taken much interest in this branch of study, and as a disciplinary and culture study it has been very beneficial to them. The only difficulty in the way has been the shortness of time, one half term only, allotted to this important subject. But, in the late readjustment of the curriculum, this difficulty was to some extent removed; for the time for the study of Mental and Moral Science was extended to an entire term. Of course, these profound subjects cannot be studied exhaustively in three months; but still the general divisions, fundamental principles, and much more that is profitable in the study of mind and morals may be acquired in even this short time.

Expecting, therefore, greater and better things in this line in the future, this report along with my report of the Preparatory Department, is

Respectfully submitted,
DABNEY LIPSCOMB,
Prof. in Charge Prep. Dep't.

REPORT OF THE SURGEON.

AGRICULTURAL COLLEGE, MISSISSIPPI,
November 7, 1891.

Gen. S. D. Lee, President:

DEAR SIR—I respectfully offer the following report as Surgeon of the Agricultural and Mechanical College, of the State of Mississippi:

The sanitary condition of the campus, has been in every way perfect, all the offal and filth attendant upon so large a body of students and officers, have been hauled off and not allowed to contaminate the soil, and in this way get into the drinking water.

The cisterns are all in good condition, and the water of each is analyzed once or twice yearly, making it impossible for impure water to exist in any one of them without our knowledge.

The diet of mess hall has been wholesome and well prepared, our facilities for taking care of the sick are better than any other place in the State, we have a hospital with eight rooms, four large and four small ones, a gasoline stove for the purpose of heating water, warming food and making other necessaries for the sick; a good cemented cistern that will hold about five hundred barrels of water. We have a skilled nurse who sleeps in the hospital, gives all the medicine and watches the sick at all hours. The health of the students since my last report, November 2d, 1889, has been good. We have not had a death in seven years, notwithstanding the fact we have had some very serious cases of illness among the students, such as malaria haematuria, who came here from off the Mississippi bottom with the malaria in their systems. The greater part of our sickness is with the boys from off the Mississippi bottom, who suffer about two months with malarial poison after they come here.

I still say we are fortunate in having but four accidents, not a single broken bone since my last report, and only five or six sprained joints, and one or two dislocated.

It is my duty to have regular hours at my office, to prescribe for the sick, and grant excuses to all students who are unable to perform the duties of that day. I am also the Sanitary officer of the institution, and as such, I am to determine when the peculiar state of the weather demands in the interest of health, the cessation of any duty to be performed by, or required of the students; also whatever else is required of me, as health officer, by the President.

For said services I am paid a fee of five dollars, by the College for every student that matriculates. This fee is collected from the students.

W. H. Barr,
Surgeon.

REPORT OF STEWARD.

Agricultural College, Mississippi,
November 1, 1891.

Gen. S. D. Lee, President A. & M. College:

Dear Sir—I beg to be allowed to submit the following as my second biennial report of the Steward's Department.

The dining hall erected since the other one was destroyed by fire, is much more convenient and comfortable than the old one. I have never been able to paint it on the inside for want of funds.

The department is well equipped, and has all the conveniences, and furniture necessary for the accommodation and comfort of two hundred and fifty students.

The price charged for board for the last session of 1890 and 91, was $8.40, against $8.42 for session of 1889 and 90, and $8.70 for session of 1888 and 89, when I had only been at the head of the department five months.

I think the price charged for board for the last two sessions, is about as low as it can be gotten, so long as the fare is kept up to its present standard, and the labor for the policeing of the buildings, and coal oil for lights is charged in the amount paid for board.

All supplies used by the department, is bought at the lowest wholesale price for cash, and students are charged the actual cost for board each month, which, for last session, was $8.40, average.

With this report I hand you an inventory of property belonging to the Steward's department, amounting to $3,890.

Respectfully submitted,

W. J. GALLAWAY,
Steward.

REPORT OF PROCTOR.

AGRICULTURAL COLLEGE, MISSISSIPPI,
November 1, 1891.

Gen. S. D. Lee, President A. & M. College.

DEAR SIR—I respectfully submit the following report as Proctor of Buildings:

On account of small appropriations for the last four years, the College had no money with which to keep up the repairs on property under my supervision belonging to the State, until it became absolutely necessary that the floors, doors, window casings, door facings, and steps to the Dormitory and Academic buildings be repaired. The Board of Trustees ordered that the inside of these buildings be repaired and new steps put to them, which work was done during the last summer.

I have called your attention before to the fact, that it was not only the opinion of myself, but others, with whom I had consulted, who had more experience in that line, that the veranda of the Academic building was not safe, and I feared would not hold the crowds of people, woman and children, who sometimes congregated on it, especialy during commencement, the fact that it gave way with twenty-five or thirty students some time ago, goes to prove my fears were not groundless. It should be torn away and an iron one put there in its stead.

I desire to call your attention to some cracks in both the buildings, in the Dormitory in different parts of the building, most noticeable in the museum, in the Academic building on three sides, east, north and west, the crack at north-west corner, is a very serious one as it has opened very perceptably within the last two months, and having consulted with more experienced parties in that line, I must say that when the ground becames wet, I fear it will become more serious and perhaps disastrous, unless a sufficient number of tie rods are placed in it at once.

In view of the above stated facts, and for the protection of public property, I respectfully ask that the sum of twenty-five hundred dollars be appropriated for the purpose of placing an iron veranda around the Academic building, and the placing of tie or safety rods in both buildings. After consultation with experienced mechanics and brickmasons, I am thoroughly convinced that something must be done for the protection of this property just as soon as possible. It it is not done, serious results may follow.

Very respectfully,
W. J. GALLAWAY,
Proctor.

REPORT OF THE STATE CHEMIST.

AGRICULTURAL AND MECHANICAL COLLEGE,
November 15th, 1891.

Gen. S. D. Lee, President:

DEAR SIR:—I have the honor herewith to submit the biennial report of the State Chemist:

The work done by the State Chemist consists principally in the analyses of fertilizers, marls, soils, minerals, potable and mineral waters.

With the exception of potable and mineral waters and toxicological work, no charge is made for this work to the citizens of the State.

The fertilizer law of this State and the valuation of fertilizers appear on pages 15-23 of the First Annual Report of of the Experiment Station.

The laboratory is well fitted up for the work we have to do, being furnished with gas, water, work tables, good balances, apparatus, and other necessaries for such work.

The farmers of the State seem to be taking advantage of our offer to make their analyses free of charge and have been sending in soils, minerals, etc., with sufficient frequency to keep the laboratory force quite busy.

Mr. J. S. Meng, our former assistant in this laboratory, having accepted a position in the North Carolina Experiment Station, Mr. W. R. Perkins, a graduate of this College, has been appointed to the position, which he fills with ability.

Below will be found a table of the fertilizer analyses made during the seasons of 1890-91.

Yours respectfully,
L. G. PATTERSON,
Acting State Chemist.

FERTILIZER ANALYSES MADE DURING THE SEASON OF 1890-91.

BRAND OF FERTILIZER.	NAME OF SENDER.	ADDRESS OF SENDER.	Laboratory Number.	Moisture	Water Soluble, P_2O_5	Citrate Soluble, P_2O_5	Insoluble, P_2O_5	TOTAL, P_2O_5	Available P_2O_5	Nitrogen.	Equivalent to Ammonia.	Potash Soluble in water.
Scott's High Grade Acid Phosphate	G. W. Scott Mfg. Co.	Atlanta, Ga.	817	14.35	12.47	1.09	1.73	15.29	13.26	......	......	......
Gossyppium	" " "	" "	818	14.75	8.64	.15	2.47	11.26	8.79	2.65	3.22	1.80
Adair's Acid Phosphate	Adair Bros. & Co.	" "	819	10.55	12.15	1.79	1.02	14.96	13.94	......	......	......
Furman's Acid Phosphate	" " "	" "	820	10.60	12.19	2.08	.83	15.10	14.27	......	......	......
Farish Furman's Formula	" " "	" "	821	16.34	7.74	2.43	2.07	12.24	10.17	......	......	3.04
Planters Soluble Guano	" " "	" "	822	9.17	6.33	1.68	4.22	12.23	8.01	2.50	3.04	3.30
Buffalo Bone Guano	" " "	" "	823	9.79	9.40	1.72	1.80	12.92	11.12	2.15	2.61	2.58
Adair's Amm'd Diss'd Bone	" " "	" "	824	7.90	8.12	2.23	.91	11.26	10.35	3.00	3.64	3.14
Furman's High Grade Guano	" " "	" "	825	9.53	9.53	.51	2.05	12.09	10.04	3.10	3.76	4.06
Furman's Soluble Bone	" " "	" "	826	12.31	8.74	1.63	2.30	12.67	10.37	1.35	1.64	2.40
Ralston's Knick'b'ck'r Diss'd Bone	Northwestern Fertilizer Co	Chicago, Ill.	827	17.90	3.13	5.76	7.36	16.25	8.89	2.35	2.85	2.20
Atkinson's Pelican C. & C. Grower	" " "	" "	828	18.83	3.11	5.26	7.42	15.79	8.37	2.33	2.83	2.25
Amm'd Diss'd Bone	" " "	" "	829	19.28	3.85	4.89	7.23	15.97	8.74	2.33	2.83	2.16
National Bone Dust	" " "	" "	830	17.43	2.94	6.07	7.36	16.37	9.01	2.35	2.85	2.08
Bradley's Patent Super Phosphate	Bradley Fertilizer Co.	Boston, Mass.	831	16.15	7.68	1.89	1.60	11.17	9.57	2.50	3.04	2.38
Bradley's B. D. Sea Fowl Guano	" " "	" "	832	17.27	9.06	1.32	2.49	12.89	10.38	2.00	2.43	2.36
Bradley's Palmetto Acid Phos	" " "	" "	833	16.10	9.06	4.08	.87	14.01	13.14	......	......	......
Empire Guano	The Rasin Fertilizer Co.	Baltimore, Md	835	18.60	7.37	1.49	2.07	10.93	8.86	2.60	3.16	2.78
Soluble Sea-Island Guano	" " "	" "	836	16.45	6.88	2.06	2.05	10.99	8.94	2.40	2.91	2.74
Acid Phosphate	" " "	" "	837	15.58	11.00	2.25	.86	14.11	13.25	......	......	......
Eddystone Guano	Atlanta Guano Co.	Atlanta, Ga.	839	14.37	7.69	2.16	1.92	11.77	9.85	1.80	2.19	2.18
Sunny South Acid Phosphate	" " "	" "	838	17.75	10.81	.96	2.81	14.58	11.77	......	......	......
Acid Phosphate	The Rasin Fertilizer Co.	Baltimore, Md	840	13.30	11.71	2.36	.51	14.58	14.07	......	......	......

Amm'd Diss'd Bone	Lister's Agr. Chem. Works.	New Ark N. J.	842	15.90	8.83	2.03	.77	11.13	10.36	2.35	2.85	2.42
Cotton Seed Meal	Jackson Fert. Co.	Jackson, Miss.	843	10 90	......	......	......	3.58	......	8.00	9.71	2.60
Acid Phosphate	Meridian Fert. Factory.	Meridian, “	844	20.78	13.77	.41	1.12	15.30	14.18	.....	......	......
Cotton Seed Meal	“ “ “	“ “	846	10.80	......	......	......	4.22	......	7.06	8.57	2.84
Royal C. Brand	Jackson Fert. Factory.	Jackson, “	852	6.86	4.20	6.76	1.47	12.43	10.96	1.90	2.31	3.62
Gulf States Guano	“ “ “	“ “	853	9.30	3.98	1.24	3.94	9.16	5 22	1.85	2.25	4.34
Acid Phosphate	“ “ “	“ “	854	6.17	7.33	4 85	1.79	13.97	12.18	......	.....	......
Fruit and Vegetable Fertilizer	“ “ “	“ “	855	11.10	2.05	5.36	1.48	8.89	7.41	3.40	4.13	7.08
Soluble Pacific Acid Phosphate	W. J. Pollard.	Augusta, Ga.	856	11.67	9.08	3.49	2.78	15.35	12.57	......	......	......
Soluble Pacific Guano	“ “	“ “	857	14.47	6.01	3.99	2.43	12.43	10.00	2.00	2.43	4.00
Cotton Seed Meal	Jackson Fert. Co.	Jackson, Miss.	858	6.08	......	......	.....	4.16	......	6.90	8.38	2.68
Cotton Seed Meal	Cap. Fert. Co.	“ “	859	6.25	......	......	......	4.12	......	6.90	8.38	2.56
Acid Phosphate	“ “ “	“ “	860	9.22	9.54	3.81	2.64	15.99	13.55	......	......	......
Kainit	“ “ “	“ “	861	2.76	......	......	......	......	......	......	......	14.12
Cotton Seed Meal	A. A. Green.	“ “	862	8.90	......	......	......	3.84	......	7.65	9.29	2.58
Texas Bat Guano	J. W. Hurxthall.	CrystalSp'gs “	863	9.23	1.26	5.60	8.25	15.11	6.86	5.20	6.31	1.56
Southern Soluble Guano	Meridian Fer. Factory.	Meridian, “	864	11.61	8.51	1.89	.90	11.30	10.40	2.50	3.04	3.68
Georgia State Grange Fertilizer	Baldwin Fert. Co.	Savannah, Ga.	865	16.85	7.70	2.28	1.28	11.26	9.98	1.75	2.12	4.19
Georgia State Grange Acid Phos.	“ “ “	“ “	866	7.31	11.39	2.79	1.56	15.74	14.18	......	......	......
Acid Phosphate	Std Guano & Chem Mfg Co	New Orleans.	867	12.60	12.09	2.02	1.41	15.52	14.11	..	......	......
Stern's Pure Ground Bone	“ “ “ “ “	“ “	868	9.11	......	......	......	19.96	......	3.45	4.20	......
Cotton Seed Meal	C. S. W. Price.	Meridian, Miss	869	8.50	......	......	......	3.49	......	7.50	9.11	2.70
Castor Pomace	J. J. Pritchett.	CrystalSp'gs “	870	9.60	......	......	......	......	......	8.20	9.95	......
Cotton Seed Meal	D. H. Miller.	“ “ “	871	9.50	......	......	......	3.52	......	7.80	9.47	2.22
Acid Phospate	W. J. Hudson.	Mobile, Ala.	872	18 05	11.65	.38	2.20	14.23	13.85	......	......	......
Nonpariel	Cap. Fert. Co.	Jackson, Miss.	873	10.55	6.20	2.34	1.18	9.72	8.54	2.47	3.00	2.52
Acid Phosphate	“ “ “	“ “	874	6.29	11.13	3.64	2.49	17.26	14.77	......	......	......
Nassau Guano	Bowker Fert. Co.	Savannah, Ga.	875	18.06	8.19	1.57	1.43	11.39	9.76	1.90	2.31	1.52
Nassau Diss'd Bone Phosphate	“ “ “	“ “	876	16.16	10.50	2.11	1.13	13.74	12.61	......	......	......
English Acid Phosphate	Planters Fert. Co.	New Orleans	879	15.85	11.99	1.42	.51	13.92	13.41	......	......	......
English Acid Phosphate	“ “ “	“ “	880	15.60	13.38	1.92	.40	15.70	15.30	......	......	......
Cotton and Corn Fertilizer	“ “ “	“ “	881	13.67	7 62	1.15	.36	9.13	8.77	2.13	2.59	2.52
Acid Phosphate	Mobile Phos. Co.	Mobile, Ala.	882	18.56	12.65	1.10	.61	14.36	13.75	......	......	......
Sterns Amm'd Diss'd Bone	Std Guano & Chem Mfg Co	New Orleans	883	16.24	8.49	2.05	1.32	11.86	10.54	1.97	2.39	3.05

FERTILIZER ANALYSES MADE DURING THE SEASON OF 1890-91.—CONTINUED.

BRAND OF FERTILIZER.	NAME OF SENDER.	ADDRESS OF SENDER.	Laboratory Number.	Moisture	Water Soluble, P_2O_5	Citrate Soluble, P_2O_5	Insoluble, P_2O_5	TOTAL, P_2O_5	Available P_2O_5	Nitrogen.	Equivalent to Ammonia.	Potash Solution in water.
Brown's Cotton and Corn..........	R. B. Brown, Oil Co.	St. Louis Mo.	884	14.18	8.02	1.34	1.32	10.68	9.36	3.25	3.95	3.98
Pure Fine Ground Bone..............	Thompson & Edwards F Co	Chicago, Ill.	885	6.25	....	......	......	15.52	....	3.60	4.37	......
Blood and Bone, Animal Guano...	" " "	" "	890	10.78	.42	5.45	6.59	12.46	5.77	6.90	7.38	.80
Rainbow Sol Phosphate...............	Atlanta Guano Co.	Atlanta, Ga.	891	15.70	7.74	2.06	3.84	13.64	9.80	1.10	1.34	1.96
Bowkers Dis'd-Bone Phosphate.....	Bowker Fert. Co.	Savanah, Ga.	892	16.93	9.68	2.09	.63	12.40	11.77	......	......	2.00
Acid Phosphate........................	Jackson Fert. Co.	Jackson, Miss.	893	14.55	8.96	3.45	1.79	14.20	12.41	......	......	......
Mascot..	East Miss., Fert. Mfg. Co.	Starkville, "	894	13.87	7.88	1.11	.49	9.48	8.99	2.80	3.40	2.75
Granesca..	" " " " "	" "	895	10.17	7.32	.68	.78	8.78	8.00	3.27	3.97	2.38
Fruit and Vegetable Fertilizer......	" " " " "	" "	896	13.51	6.46	.97	.35	7.78	7.43	3.57	4.33	5.08
Standard Fertilizer.........................	Columbus Oil Mill	Columbus, "	897	9.39	7.28	1.57	1.96	10.81	8.85	2.95	3.58	3.28
Champion Farmers Choice..........	Std Guano & Chem Mfg Co	New Orleans	898	11.57	4.91	3.84	2.30	11.05	8.75	1.85	2.25	1.82
Castor Pomace............................	A. Lotterhos	CrystlSps Miss	899	10.04	....	......	......	2.89	....	7.23	8.78	2.34
Cotton and Corn Fertilizer..........	Cincinnati Desic Co.	Cincinnati, O.	900	4.59	1.48	9.26	9.68	20.42	10.79	1.75	2.12	2.58
Castor Pomace............................	J. W. McNeil	CrystlSps Miss	901	11.20	....	......	......	2.66	....	6.45	7.83	1.12
Bat Guano....................................	" " "	" " "	902	....	.64	6.19	6.97	13 80	6.83	5.77	7.00	1.21
Chicago Bone Meal......................	Thompson & Edwards F Co	Chicago, Ill.	903	12.30	....	......	......	15.90	....	2.75	3.34	4.06
Castor Pomace............................	L. Palmer	CrystlSps Miss	904	10.68	....	......	......	2.37	....	7.12	8.64	1.37
Gulf States Guano........................	Jackson Fert. Co.	Jackson, "	905	7.00	5.65	2.67	1.44	9.76	8.32	1.78	2.16	4.50
Woodward Sol. Guano................	Coweta Fert. Co	Newman, Ga.	1495	16.40	7.80	2.42	1.51	11.73	10.22	1.80	2.19	1.76
Woodward's High Grade Acid Phs	" " "	" "	1496	13.00	10.58	2.66	1.92	15.16	13.24	......	......	......
Eclipse Sol. Guano........................	Mobile Phos & Chm Mfg Co	Mobile Ala.	1497	14.95	9.94	1.98	1.09	13.01	11.92	1.75	2.12	2.00
Mobile Standard Guano..............	" " " " "	" "	1498	14.30	9.98	1.45	1.34	12.77	11.43	1.70	2.06	1.80
Acid Phosphate........................	Meridian Fertilizer Factory	Meridian Miss	1499	17.15	11.72	1.99	1.07	14.78	13.71	......	......	......

Home Mixture Guano...........	Meridian Fertilizer Factory	Meridian Miss	1500	16.15	8.26	2.63	1.07	11.96	10.89	1.45	1.76	1.95
Pure Fine Ground Bone.............	Thompson & Edwards F Co	Chicago, Ill.	1502	4.20	....	......	......	24 14	....	2.59	3.14	......
Scotts Animal Amm'd. Guano......	Geo. W. Scott Mfg. Co.	Atlanta, Ga.	1503	19.44	8.12	1.22	3.33	12.67	9.34	2.00	2.48	1.61
Magnet Sol. Guano.....................	Davis, Marshall & Co.	Mobile, Ala.	1504	17.70	8.87	1.57	.47	10.91	10.44	2 00	2.43	1.98
Magnet Acid Phos.....................	Davis, Marshall & Co.	" "	1505	16.99	11.92	1.52	.38	13.83	13.44	......	......	......
Atlanta Sol. Bone......................	Atlanta Guano Co.	Atlanta, Ga.	1509	17.50	9.76	2.34	2.65	14.75	12.10	......	......	......
English Acid Phosphate.............	L. R. Brown	Meridian Miss	1510	16.45	11.67	2.63	.90	15.20	14.30	......	......	......
Cotton Seed Meal.......................	Jackson Fert. Co.	Jackson, Miss.	1511	11.59	....	......	......	4.23	....	6.75	8.19	2.58
German Kainit............................	" " "	" "	1512	5.00	....	......	......	....	.... ..	......	.. ...	14.05
Bowkers Cotton Fertilizer..........	Bowker Fert. Co.	Savannah, Ga.	1513	7.70	7.68	1.94	1.25	10.87	9.62	2.13	2,59	2.35
Home Mixture Guano................	Meridian Fert. Factory	Meridian Miss	1513½	8.19	1.83	1.01	11.03	10.02	1.70	2.06	3.09	......
Acid Phosphate...........................	" " "	" "	1514	18.65	10.95	1.93	.96	13.84	12.88	......	......	......
Cotton Seed Meal.......................	" " "	" "	1515	10.69	....	.....	......	3.84	....	6.75	8.19	3.00
Cotton Seed Meal.....	Columbus Oil Mills.	Columbus "	1516	9.90	....	......	......	3.45	....	7.05	8.56	2.70
No. 1 Bone Guano...	North West Fert. Co.	Chicago, Ill.	1517	17.04	3.03	6.97	7.23	17.23	10.00	1.75	2.12	1.42
Cotton Seed Meal	West Point Oil Mills.	West Pt. Miss	1518	8.20	....	......	......	3.90	....	7.08	8.60	2.21
Goulding's Bone Compound.........	Goulding Fert. Co.	Pensacola Fla.	1519	18.10	6.65	1.03	1.98	9.66	7.68	2.10	2.55	1.60
Polk's Alliance Sol. Bone Potash...	Lorentz & Rittler.	Baltimore Md.	1526	14.80	8 00	1.54	2.11	11.65	9.54	......	......	2.13
Diamond State Guano................	" "	" "	1527	14.30	6.72	2.68	1.41	10.81	9.40	1.65	2.00	2.11
Royal C. Brand...........................	Jackson Fert. Co.	Jackson, Miss.	1528	7.85	5.95	1.45	1.28	7.68	7.40	1.50	1.82	4.90
Acid Phosphate...........................	East Miss., Fert. Mfg. Co.	Starkville, "	1540	11.78	7.29	5.72	3.68	16.69	13.01	......	......	......
Bone Meal..................................	Armour & Co.	Chicago, Ill.	1574	4.55	....	......	......	25.59	....	3.25	3.95	......
Blood and Bone...........................	" "	" "	1575	6.70	....	......	......	13.70	......	6.80	8.26	......

Laws of Congress Relating to the College.

AN ACT donating public lands to the several States and Territories which may provide Colleges for the benefit of agriculture and the mechanic arts.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress Assembled, That there be granted to the several States, for the purpose hereinafter mentioned, an amount of public land, to be apportioned to each State a quantity equal to thirty thousand acres for each Senator and Representative in Congress to which the States are respectively entitled by the appointment under the census of eighteen hundred and sixty. *Provided*, that no mineral lands shall be selected or purchased under the provisions of this Act.

SEC. 2. *And be it further enacted*, That the land aforesaid after being surveyed, shall be apportioned to the several States in sections, or subdivisions of sections not less than one quarter of a section; and whenever there are public lands in a State subject to sale at private entry at one dollar and twenty-five cents per acre, the quantity to which said State shall be entitled shall be selected from such lands within the limits of such State; and the Secretary of the Interior is hereby directed to issue to each of the States in which there is not the quantity of public land subject to sale at private entry at one dollar and twenty-five cents per acre, to which said State may be entitled under the provisions of this Act, land scrip to the amount of acres for the deficiency of its distributive share; said scrip to be sold by said State, and the proceeds thereof applied to the uses and purposes prescribed in this Act, and for no other use or purpose whatever; *Provided*, that in no case shall any State to which land scrip may thus be issued be allowed to locate the same within the limits of any other State, or of any Territory of the United States, but their assignees may thus locate said land scrip upon any of the unappropriated lands of the United States subject to sale at private entry, at one dollar and twenty-five cents or less per acre; *and provided further*, that not more than one million acres shall be located by such assignees in any one of the States; *and provided further*, that no such location shall be made before one year from the passage of this Act.

SEC. 3. *And be it further enacted*, That all the expenses of management, superintendence and taxes, from date of selection of said lands previous to their sales, and all expenses incurred in the management and disbursement of the moneys which may be received therefrom. shall be paid by the States, to which they may belong, out of the Treasury of said States, so that the entire proceeds of the sale of said lands shall be applied without any diminution whatever to the purposes hereinafter mentioned.

SEC. 4. *And be it further enacted*, That all moneys derived from the sale of the lands aforesaid by the States to which the lands are apportioned, and from the sale of lands scrip hereinbefore provided for, shall be invested in stocks of the United States, or of the States, or of some other safe stocks yielding not less than five per centum upon the par value of said stocks; and that the moneys so invested shall constitute a perpetual fund, the capital of which shall remain forever undiminished (except so far as may be provided in fifth section of this Act), and the interest of which shall be inviolably appropriated by each State which may take and claim the benefit of this Act. to the endowment, support and maintenance of at least one College, where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, and in such manner as the Legislatures of the States may prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life.

SEC. 5. *And be it further enacted*, That the grant of land and land scrip hereby authorized shall be made on the following conditions, to which as well as to the provisions hereinbefore contained, the previous assent of the several States shall be signified by legislative acts:

1. If any portion of the fund invested as provided by the foregoing section, or any portion of the interest thereon, shall by any act or contingency be diminished or lost, it shall be replaced by the State to which it belongs, so that the capital of the fund shall remain forever undiminished; and the annual interest shall be regularly applied without diminution to the purposes mentioned in the fourth section of this Act, except that a sum not exceeding ten per centum upon the amount received by any State under the provisions of this Act may be expended for the purchase of lands for sites of experiment farms whenever authorized by the respective Legislatures of said States.

2. No portion of said fund, nor interest thereon, shall be applied directly or indirectly, under any pretense whatever, to the purchase, erection, preservation or repair of any building or buildings.

3. Any State which may take and claim the benefit of the provisions of this Act, shall provide within five years at least not less than one College, as described in the fourth section of this Act, or the grant to said State shall cease; and said State shall be bound to pay the United States the amount received of any lands previously sold, and the title to purchasers under the State shall be valid.

4. An annual report shall be made regarding the progress of each College, recording any improvements and experiments made, with their costs and results, and such other matters, including State and industrial statistics, as may be supposed useful; one copy of which shall be transmitted by mail free by each to all the other Colleges which may be endowed under the provisions of this Act, and also one copy to the Secretary of the Interior.

5. When lands shall be selected from those which have been raised to double the minimum price, in consequence of railroad grants, they shall be computed to the States at the maximum price, and the number of acres proportionately diminished.

6. No State, while in a condition of rebellion or insurrection against the Government of the United States, shall be entitled to the benefit of this Act.

7. No State shall be entitled to the benefit of this Act unless it shall express the acceptance thereof by the Legislature within two years from the date of its approval by the President.

SEC. 6. *And be it further enacted*, That land scrip issued under the provisions of this Act shall not be subject to location until after the first day of January, one thousand eight hundred and sixty-three.

SEC. 7. *And be it further enacted*, That the land officers shall receive the same fees for locating land scrip issued under the provisions of this Act as are now allowed for the location of military bounty land warrants under existing laws; *Provided*, that maximum compensation shall not be thereby increased.

SEC. 8. *And be it further enacted*, That the Governors of the several States to which scrip shall be issued under this Act shall be required to report annually to Congress all sales made of such scrip until the whole shall be disposed of, the amount received for the same, and what appropriation has been made of the proceeds.

Approved July 2, 1862.

AN ACT to establish Agricultural Experiment Stations in connection with the colleges established in the several States under the provisions of an Act approved July 2, 1862, and of the Acts supplementary thereto.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress Assembled, That in order to aid in acquiring and diffusing among the people of the United States useful and practical information on subjects connected with agriculture, and to promote scientific investigation and experiment respecting the principles and applications of agricultural science, there shall be established, under direction of College or Colleges, or Agricultural Department of Colleges in each State or Territory established, or which may hereafter be established, in accordance with the provisions of an Act approved July 2, 1862, entitled "An act donating public lands to the several States and Territories which may provide Colleges for the benefit of Agriculture and the Mechanic arts," or any of the supplements to said Act, a department known and designated as an "Agricultural Experiment Station; *Provided,* that any State or Territory in which two such Colleges have been or may be so established, the appropriation hereinafter made to such State or Territory shall be equally divided between such Colleges, unless the Legislature of such State or Territory shall otherwise direct.

SEC. 2. That it shall be the object and duty of said Experiment Stations to conduct original researches or verify experiments on the physiology of plants and animals; the diseases to which they are severally subject, with the remedies for the same; the chemical composition of useful plants at their different stages of growth; the comparative advantages of rotative cropping as pursued under a varying series of crops; the capacity of new plants or trees for acclimation; the analysis of soils and water; the chemical composition of manures, natural or artificial, with experiments designed to test their comparative effects on crops of different kinds; the adaptation and value of grasses and forage plants; the composition and digestibility of the different kinds of food for domestic animals; the scientific and economic questions involved in the production of butter and cheese; and such other researches or experiments bearing directly on the agricultural industry of the United States as may in each case be deemed advisable, having due regard to the varying condition and needs of the respective States and Territories.

SEC. 3. That in order to secure, as far as practicable, uniformity of methods and results in the work of said stations, it shall be the duty of the United States Commissioner of Agriculture to furnish forms, as far as practicable, for the tabulation of results of investigation or experiments; to indicate, from time to time, such lines of inquiry as to him shall seem most important; and, in general, to furnish such advice and assistance as will promote the purposes of this Act. It shall be the duty of each of said stations annually, on or before the first day of February, to make to the Governor of the State or Territory in which it is located a full and detailed report of its operations, including a statement of receipts and expenditures, a copy of which report shall be sent to each of said stations, to the said Commissioner of Agriculture, and to the Secretary of the Treasury of the United States.

SEC. 4. That bulletins or reports of progress shall be published at said stations at least once in three months, one copy of which shall be sent to each newspaper in the States or Territories in which they are respectively located, and to such individuals actually engaged in farming as may request the same, and as far as the means of the station will permit. Such bulletins or reports and the annual reports of said stations shall be transmitted in the mails of the United States free of charge for postage, under such regulations as the Postmaster General may from time to time prescribe.

SEC. 5. That for the purpose of paying the necessary expenses of conducting investigations and experiments and printing and distributing the results as hereinbefore prescribed, the sum of $15,000 per annum is hereby appropriated to each State, to be specially provided for by Congress in the appropriations from year to year, and to each Territory entitled under the provisions of section eight of this Act, out of any money in the Treasury proceeding from the sales of public lands, to be paid in equal quarterly payments, on the first day of January, April, July and October in each year, to the Treasurer or other officer duly appointed by the governing boards of said Colleges to receive the same, the first payment to be made on the first day of October, 1887; *Provided*, however, that out of the first annual appropriation so received by any station an amount not exceeding one-fifth may be expended in the erection, enlargement, or repair of a building or buildings necessary for carrying on the work of such station; and therefore an amount not exceeding five per centum of such annual appropriation may be so expended.

SEC. 6. That whenever it shall appear to the Secretary of the Treasury from the annual statement of receipts and expenditures of any of said stations that a portion of the preceding annual appropriation remains unexpended, such amount shall be deducted from the next succeeding annual appropriation to each station, in order that the amount of money appropriated to any station shall not exceed the amount actually and necessarily required for its maintenance and support.

SEC. 7. That nothing in this Act shall be construed to impair or modify the legal relation existing between any of the said Colleges and the government of the States or Territories in which they are respectively located.

SEC. 8. That in States having Colleges entitled under this section to the benefits of this Act and having also Agricultural Experiment Stations established by law separate from said Colleges, such States shall be authorized to apply such benefits to experiments at stations so established by such States; and in case any State shall have established under the provisions of said Act of July 2d aforesaid, an Agricultural Department or Experimental Station, in connection with any University, College or institution not distinctively an Agricultural College or School, and such State shall have established or shall hereafter establish a separate Agricultural College or School, which shall have connected therewith an Experimental Farm or Station, the Legislature of such State may apply in whole or in part the appropriation by this Act made, to separate Agricultural College or School, and no Legislature shall by contract express or implied disable itself from so doing.

SEC. 9. That the grants of moneys authorized by this Act are made subject to the legislative assent of the several States and Territories to the purposes of said grants; *Provided*, that payment of such installments of the appropriation herein made as shall become due to any State before the adjournment of the regular session of its Legislature meeting next after the passage of this Act shall be made upon the assent of the Governor thereof, duly certified to the Secretary of the Treasury.

SEC 10. Nothing in this Act shall be held or construed as binding the United States to continue any payments from the Treasury to any or all the States or institutions mentioned in this Act, but Congress may at any time amend, suspend or repeal any or all the provisions of this Act.

Approved, March 2, 1887.

AN ACT to apply a portion of the public lands to the more complete endowment and support of Colleges for the benefit of agriculture and the mechanic arts, established under the provisions of an act of Congress, approved July second, eighteen hundred and sixty-two.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That there shall be, and hereby is, annually appropriated, out of any money in the Treasury not otherwise appropriated, arising from the sales of public lands, to be paid as hereinafter provided, to each State and Territory for the more complete endowment and maintenance of Colleges for the benefit of agriculture and the mechanic arts now established, or which may be hereafter established, in accordance with an Act of Congress, approved July second, eighteen hundred and sixty-two, the sum of fifteen thousand dollars for the year ending June thirtieth, eighteen hundred and ninety, and an annual increase of the amount of such appropriation thereafter for ten years by an additional sum of one thousand dollars over the preceding year, and the annual amount to be paid thereafter to each State and Territory shall be twenty-five thousand dollars, to be applied only to instruction in agriculture, the mechanic arts, the English language, and the various branches of mathematical, physical, natural and economic science, with special reference to their applications in the industries of life, and to the facilities for such instruction; *Provided*, that no money shall be paid out under this Act to any State or Territory for the support and maintenance of a College where a distinction of race or color is made in admission of students, but the establishment and maintenance of such Colleges separately for white and colored students shall be held to be a compliance with the provisions of this Act if the funds received in such State or Territory be equitably divided as hereinafter set forth; *Provided*, that in any State in which there has been one College established in pursuance of the act of July second, eighteen hundred and sixty-two, and also in which an educational institution of like character has been established, or may be hereafter established, and is now aided by such State from its own revenue for the education of colored students in agriculture and the mechanic arts, however named or styled, or whether or not it has received money heretofore under the Act to which this Act is an amendment, the Legislature of such State may propose and report to the Secretary of the Interior a just and equitable division of the funds to be received under this Act between one College for white students and one institution for colored students established as aforesaid, which shall be divided into two parts and paid accordingly, and thereupon such institution for colored students shall be entitled to the benefits of this Act and subject to its provisions, as much as it would have been if it had been included under the Act of eighteen hundred and sixty-two, and the fulfillment of the foregoing provisions shall be taken as a compliance with the provision in reference to separate Colleges for white and colored students.

SEC. 2. That the sums hereby appropriated to the States and Territories for the further endowment and support of Colleges shall be annually paid on or before the thirty-first day of July of each year, by the Secretary of the Treasury, upon the warrant of the Secretary of the Interior, out of the Treasury of the United States, to the State or Territorial Treasurer, or to such officer as shall be designated by the laws of such State or Territory to receive same, who shall, upon the order of the Trustees of the College, or the institution for colored students, immediately pay over said sums to the Treasurers of the respective Colleges or other institutions entitled to receive the same, and such Treasurers shall be required to report to the Secretary of Agriculture and to the Secretary of the Interior on or before the first day of September of each year, a detailed statement of the amount so received and of its disbursement. The grants of moneys authorized by this Act or made subject to the legislative assent of the several States and Territories to the purpose of said grants; *Provided*, that payments of such installments of the appropriation herein made as shall become due to any State before the adjournment of the regular session of Legislature meeting next after the passage of this Act shall be made upon the assent of the Governor thereof, duly certified to the Secretary of the Treasury.

Sec. 3. That if any portion of the moneys received by the designated officer of the State or Territory for the further and more complete endowment, support and maintenance of Colleges, or of institutions for colored students, as provided in this Act, shall, by any action or contingency, be diminished or lost, or be misapplied, it shall be replaced by the State or Territory to which it belongs, and until so replaced no subsequent appropriation shall be apportioned or paid to such State or Territory; and no portion of said moneys shall be applied directly or indirectly, under any pretense whatever, to the purchase, erection, preservation or repair of any building or buildings. An annual report by the president of each of said Colleges shall be made to the Secretary of Agriculture, as well as to the Secretary of the Interior, regarding the condition and progress of each College, including statistical information in relation to its receipts and expenditures, its library, the number of its students and professors, and also as to any improvements and experiments made under the direction of any Experiment Stations attached to said Colleges, with their costs and results, and such other industrial and economical statistics as may be regarded as useful, one copy of which shall be transmitted by mail to all other Colleges further endowed under this Act.

Sec. 4. That on or before the first day of July in each year, after the passage of this Act, the Secretary of the Interior shall ascertain and certify to the Secretary of the Treasury as to each State and Territory whether it is entitled to receive its share of the annual appropriation for Colleges, or of institutions for colored students, under this Act, and the amount which thereupon each is entitled respectively, to receive. If the Secretary of the Interior shall withhold a certificate from any State or Territory of its appropriation the facts and reasons therefor shall be reported to the President, and the amount involved shall be kept separate in the Treasury until the close of the next Congress, in order that the State or Territory may, if it should so desire, appeal to Congress from the determination of the Secretary of the Interior. If the next Congress shall not direct such sum to be paid it shall be covered into the Treasury. And the Secretary of the Interior is hereby charged with the proper administration of this law.

SEC. 5. That the Secretary of the Interior shall annually report to Congress the disbursements which have been made in all the States and Territories, and also whether the appropriation of any State or Territory has been withheld, and if so, the reasons therefor.

SEC. 6. Congress may at any time amend, suspend or repeal any or all of the provisions of this Act.

Approved August 30, 1890.

LAWS OF THE STATE RELATING TO THE COLLEGE.

AN ACT to establish and organize Agricultural and Mechanical Colleges, and to regulate the government of same.

WHEREAS, Section 8, of Article VIII, of the Constitution provides that the Legislature shall, as soon as practicable, provide for the establishment of an Agricultural College or Colleges, and shall appropriate the two hundred and ten thousand acres of land donated to the State for the support of such a College by the Act of Congress, passed July 2, A. D., 1862, or the money or scrip as the case may be, arising from the sale of said lands, or any lands which may hereafter be granted or appropriated for such purposes; and

WHEREAS, The State having accepted said lands and pledged its faith to appropriate the same to the endowment of said institutions of learning; therefore,

SECTION 1. *Be it enacted by the Legislature of the State of Mississippi,* That the institution known as the Alcorn University is hereby established as, and declared to be an Agricultural College, for the education of the colored youth of the State, and to be hereafter known as the Alcorn Agricultural and Mechanical College of the State of Mississippi.

SEC. 2. *Be it further enacted,* That an Agricultural College is hereby established for the education of the white youth of the State of Mississippi, and shall be known as the Agricultural and Mechanical College of the State of Mississippi, and shall be located and organized as hereinafter provided.

SEC. 3. *Be it further enacted*, That the Governor of the State shall nominate and appoint, by and with the advice and consent of the Senate, nine persons for each of said Colleges, to be Trustees, to serve six years, one for each of said Colleges, to be chosen from each Congressional District, and the remainder from the State at large; five of each Board of Trustees shall be chosen from practical agriculturists or mechanics, or selected from both, as may be deemed advisable. Immediately after they shall be assembled, in consequence of their first appointment, they shall be divided equally into three classes. The term of the first class shall expire two years from the date of their appointment, and the second class four years from the date of their appointment, and the third class at the expiration of six years, so that one-third may be chosen every second year; and if vacancies happen by resignation or otherwise, the Governor may make temporary appointments until the next meeting of the Legislature. The Governor shall be *ex-officio* a member of each of said Boards of Tustrees, and shall act as President thereof in all of their meetings when present, but in his absence they may choose a President *pro tem.* Five of the Trustees of each Board shall be a quorum for the transaction of business.

SEC. 4. *Be it further enacted*, That the Secretary of State shall furnish a certificate to each Trustee within ten days after his appointment, notifying him that he has been so appointed; and if any Trustee fail for the space of thirty days to inform the Governor of his acceptance, then his appointment shall be void, and his place filled as heretofore provided in cases of vacancies.

SEC. 5. *Be it further enacted*, That each of the Boards of Trustees herein provided for, and their successors in office, be and the same are hereby declared to be a body politic and corporate by their respective names and styles, and shall have a common seal, and each in his own name shall sue and be sued, contract and be contracted with, and may own, purchase, sell and convey property, both real, personal and mixed.

SEC. 6. *Be it further enacted*, That the Governor shall, as *ex-officio* President, convene the Board of Trustees of either of said Colleges, to consider any business connected with the same, whenever he shall deem it expedient to do so.

SEC. 7. *Be it further enacted*, That the Trustees of each College shall elect a Secretary of the Board, whose duty it shall be to record in a well bound book all the proceedings had by said Board, and shall be allowed such compensation for his services as the Board may deem proper.

SEC. 8. *Be it further enacted*, That the State Treasurer shall be *ex-officio* Treasurer of both Boards of Trustees, whose duty it shall be to secure and safely keep all moneys belonging to the Agricultural and Mechanical Colleges, and to disburse the same under the orders of the Board of Trustees.

SEC. 9. *Be it further enacted*, That each of said Boards of Trustees shall possess all the power that is necessary and proper for the accomplishment of the trust reposed in them, viz: the establishment and maintenance of a first-class institution, at which the youth of the State of Mississippi may acquire a common school education, and a scientific and practical knowledge of agriculture, horticulture and the mechanical arts; also of the proper growth and care of stock without, however, excluding military tactics. They may also adopt all such by-laws and regulations as they may deem necessary for that purpose, not repugnant to the Constitution and laws of the State or of the United States.

SEC. 10. *Be it further enacted*, That the Board of Trustees shall appoint the President and Professors of the College, and such other officers as they may think proper to put the College into successful operation, and shall make such laws, rules and regulations for the government of said officers as they may deem advisable. They shall regulate the course of study, rates of tuition, management of the experimental farm, the manner of performing labor and the kind of labor to be performed by the students, together with the course of discipline necessary to enforce the faithful discharge of the duties of all officers, professors and students.

SEC. 11. *Be it further Enacted*, That the Trustees to be appointed as hereinbefore provided, shall receive as compensation for their services their actual expenses incurred in attending any of the meetings of the Board of Trustees, payable out of any funds belonging to the College.

SEC. 12. *Be it further enacted*, That the said Board of Trustees shall organize under the provisions of this Act as soon as practicable after their appointment, and the Trustees of the Agricultural and Mechanical College of the State of Mississippi shall, immediately after their organization, proceed to procure, by purchase or donation, a site for the location of the said Agricultural and Mechanical College, with an experimental farm thereto attached of not less than one hundred and sixty acres of land. In the selection of the said site and experimental farm, the Trustees shall look to the convenience of the people of every section of the State, the proximity of the proposed site to other public institutions supported in whole or in part by the State, with a view to giving the preference to localities least favored heretofore, and also the facilities for going to and from said College, the advantages and disadvantages of the different sites proposed, and shall locate the same at the place where most advantages are offered; *Provided,* the location shall be at a place known to be healthy; *and Provided,* that said Trustees shall give notice for sixty days in three newspapers published in this State, that they will receive proposals and examine sites before locating said College.

SEC. 13. *Be it further enacted,* That the interest arising from the proceeds of the fund known as the Agricultural Land Scrip Fund is hereby set apart for the use and benefit of said Agricultural and Mechanical College, to be used in equal proportions for the benefit of the youth of both races and Colleges, and shall be drawn from the Treasury by the Board of Trustees on vouchers audited by the Board and approved by the Governor, and filed in the Auditor's office, and upon the filing of such vouchers the Auditor of Public Accounts shall draw his warrant on the State Treasurer for the same from time to time, as funds may be needed to pay the officers and professors of said Colleges, or for any other necessary and proper object connected with the said Agricultural and Mechanical College not inconsistent with the Act of Congress, approved July 2, 1862.

SEC. 14. *Be it further enacted,* That in order to establish financial equity in all respects between the Colleges herein provided for, a sum equal to the amount heretofore appropriated to the Alcorn University out of the principal arising from the sale of said land scrip, is hereby appropriated to the College provided for in section two of this Act, and the Trustees thereof shall be authorized to use the same in carrying out the provisions of this Act for the benefit of said College not inconsistent with the Act or Acts of Congress donating the same.

SEC. 15. *Be it further enacted,* That this Act take effect and be in force from and after its passage.

Approved February 28, 1878.